



# Discrete Products

## **More New Products:**

- Symmetric SOIC-8  
Dual/Single DMOS
- SuperSot DMOS (SOT-23)
- DMOS and Bipolar Devices  
in SOT 223
- Silicon Controlled Rectifiers

# Discrete Literature Listing

Literature Number	Title	Description
570237	Discrete Products (Selection Guide and Cross Reference)	Selection Guide and Cross Reference
570231	Power DMOS Databook	Full Datasheets on TO-220, TO-263 D-Pak, and I-Pak DMOS Products
570232	SO-8 DMOS and Other Discrete New Products Databook	Full Datasheets on SO-8, SOT223, SOT-23, TO-92 DMOS, SOT223 Bipolar, and SCR Products
570240	SPICE Model	SPICE models on most Discrete products
400047	Discrete Semiconductor Products 1989	Full Datasheets for the mature Discrete Products such as Switching Diodes and Bipolar Transistors. For most up-to-date product availability, please refer to Discrete Products (Lit #570237).



# Selection Guide

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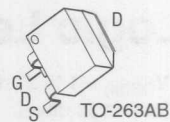
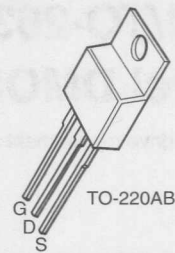
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# TO-220AB/TO-263AB DMOS

•  $V_{GS(th)} = 2$  to  $4V$



DMOS MOSFETS

## N Channel

## N Channel

(Volts) Min	Device		$r_{DS(on)}$ Max ( $m\Omega$ )	$I_D$ (Amps) Max	$P_D$ (Watts) Max	
	TO-220AB	TO-263AB	$V_{GS} = 10V$			
100	NDP710A	NDB710A	38	42	150	
	NDP710AE	NDB710AE				
	NDP710B	NDB710B	42	40		
	NDP710BE	NDB710BE				
	NDP610A	NDB610A	65	26		100
	NDP610AE	NDB610AE				
	NDP610B	NDB610B	80	24		
	NDP610BE	NDB610BE				
	NDP510A	NDB510A	120	15		60
	NDP510AE	NDB510AE				
	NDP510B	NDB510B	150	13		
	NDP510BE	NDB510BE				
	NDP410A	NDB410A	250	8		40
	NDP410AE	NDB410AE				
NDP410B	NDB410B	300	7			
NDP410BE	NDB410BE					
80	NDP708A	NDB708A	22	60	150	
	NDP708AE	NDB708AE				
	NDP708B	NDB708B	25	52		
	NDP708BE	NDB708BE				
	NDP608A	NDB608A	42	36		100
	NDP608AE	NDB608AE				
	NDP608B	NDB608B	45	32		
	NDP608BE	NDB608BE				
	NDP508A	NDB508A	80	19		60
	NDP508AE	NDB508AE				
	NDP508B	NDB508B	100	17		
	NDP508BE	NDB508BE				
	NDP408A	NDB408A	160	11		40
	NDP408AE	NDB408AE				
NDP408B	NDB408B	200	10			
NDP408BE	NDB408BE					

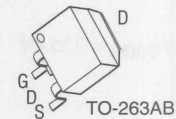
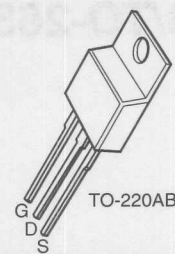
(Volts) Min	Device		$r_{DS(on)}$ Max ( $m\Omega$ )	$I_D$ (Amps) Max	$P_D$ (Watts) Max	
	TO-220AB	TO-263AB	$V_{GS} = 10V$			
60	NDP706A	NDB706A	15	75	150	
	NDP706AE	NDB706AE				
	NDP706B	NDB706B	18	70		
	NDP706BE	NDB706BE				
	NDP606A	NDB606A	25	48		100
	NDP606AE	NDB606AE				
	NDP606B	NDB606B	28	42		
	NDP606BE	NDB606BE				
	NDP506A	NDB506A	50	26		60
	NDP506AE	NDB506AE				
	NDP506B	NDB506B	60	24		
	NDP506BE	NDB506BE				
	NDP406A	NDB406A	100	15		40
	NDP406AE	NDB406AE				
NDP406B	NDB406B	150	12			
NDP406BE	NDB406BE					
50	NDP705A	NDB705A	15	75	150	
	NDP705AE	NDB705AE				
	NDP705B	NDB705B	18	70		
	NDP705BE	NDB705BE				
	NDP605A	NDB605A	25	48		100
	NDP605AE	NDB605AE				
	NDP605B	NDB605B	28	42		
	NDP605BE	NDB605BE				
	NDP505A	NDB505A	50	26		60
	NDP505AE	NDB505AE				
	NDP505B	NDB505B	60	24		
	NDP505BE	NDB505BE				
	NDP405A	NDB405A	100	15		40
	NDP405AE	NDB405AE				
NDP405B	NDB405B	150	12			
NDP405BE	NDB405BE					

2

# TO-220AB/TO-263AB

## Logic Level DMOS

- $V_{GS(th)} = 1$  to 2V, low drive requirement allowing operation directly from logic driver.



### N Channel

### N Channel

(Volts) Min	Device		$r_{DS(on)}$ Max (m $\Omega$ ) $V_{GS} = 5V$	$I_D$ (Amps) Max	$P_D$ (Watts) Max
	TO-220AB	TO-263AB			
100	NDP710AEL	NDB710AEL	38	42	150
	NDP710AL	NDB710AL			
	NDP710BEL	NDB710BEL	42	40	
	NDP710BL	NDB710BL			
	NDP610AEL	NDB610AEL	65	26	100
	NDP610AL	NDB610AL			
	NDP610BEL	NDB610BEL	80	24	
	NDP610BL	NDB610BL			
	NDP510AEL	NDB510AEL	120	15	60
	NDP510AL	NDB510AL			
	NDP510BEL	NDB510BEL	150	13	
	NDP510BL	NDB510BL			
	NDP410AEL	NDB410AEL	250	8	40
	NDP410AL	NDB410AL			
NDP410BEL	NDB410BEL	300	7		
NDP410BL	NDB10BL				
80	NDP708AEL	NDB708AEL	22	60	150
	NDP708AL	NDB708AL			
	NDP708BEL	NDB708BEL	25	52	
	NDP708BL	NDB708BL			
	NDP608AEL	NDB608AEL	42	36	100
	NDP608AL	NDB608AL			
	NDP608BEL	NDB608BEL	45	32	
	NDP608BL	NDB608BL			
	NDP508AEL	NDB508AEL	80	19	60
	NDP508AL	NDB508AL			
	NDP508BEL	NDB508BEL	100	17	
	NDP508BL	NDB508BL			
	NDP408AEL	NDB408AEL	160	11	40
	NDP408AL	NDB408AL			
NDP408BEL	NDB408BEL	200	10		
NDP408BL	NDB408BL				

(Volts) Min	Device		$r_{DS(on)}$ Max (m $\Omega$ ) $V_{GS} = 5V$	$I_D$ (Amps) Max	$P_D$ (Watts) Max
	TO-220AB	TO-263AB			
60	NDP706AEL	NDB706AEL	15	75	150
	NDP706AL	NDB706AL			
	NDP706BEL	NDB706BEL	18	70	
	NDP706BL	NDB706BL			
	NDP606AEL	NDB606AEL	25	48	100
	NDP606AL	NDB606AL			
	NDP606BEL	NDB606BEL	28	42	
	NDP606BL	NDB606BL			
	NDP506AEL	NDB506AEL	50	26	60
	NDP506AL	NDB506AL			
	NDP506BEL	NDB506BEL	60	24	
	NDP506BL	NDB506BL			
	NDP406AEL	NDB406AEL	100	15	40
	NDP406AL	NDB406AL			
NDP406BEL	NDB406BEL	150	12		
NDP406BL	NDB406BL				
50	NDP705AEL	NDB705AEL	15	75	150
	NDP705AL	NDB705AL			
	NDP705BEL	NDB705BEL	18	70	
	NDP705BL	NDB705BL			
	NDP605AEL	NDB605AEL	25	48	100
	NDP605AL	NDB605AL			
	NDP605BEL	NDB605BEL	28	42	
	NDP605BL	NDB605BL			
	NDP505AEL	NDB505AEL	50	26	60
	NDP505AL	NDB505AL			
	NDP505BEL	NDB505BEL	60	24	
	NDP505BL	NDB505BL			
	NDP405AEL	NDB405AEL	100	15	40
	NDP405AL	NDB405AL			
NDP405BEL	NDB405BEL	150	12		
NDP405BL	NDB405BL				

2

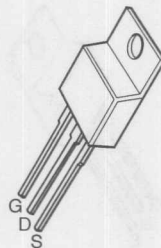
# TO-220AB DMOS Industry Part Numbers

DMOS MOSFETS

## N-Channel

(Volts) Min	Device	$r_{DS(on)}$ Max (m $\Omega$ )		$V_{GS(th)}$ (Volts)	$I_D$ (Amps) Max	$P_D$ (Watts) Max
		$V_{GS} = 10V$	$V_{GS} = 5V$			
50	BUZ11	40		2-4	30	75
50	BUZ11A	55		2-4	26	75
100	BUZ20	200		2-4	13.5	70
100	BUZ21	85		2-4	21	75
50	BUZ71	100		2-4	14	40
50	BUZ71A	120		2-4	13	40
100	IRF510	540		2-4	5.6	43
100	IRF520	270		2-4	9.2	60
100	IRF530	160		2-4	14	70
100	IRF540	77		2-4	28	115
60	IRFZ14	200		2-4	10	36
60	IRFZ24	100		2-4	17	60
60	IRFZ34	50		2-4	26	70
60	IRFZ44	28		2-4	50	115
60	IRFZ48	18		2-4	50	150
100	IRL510		540	1-2	5.6	43
100	IRL520		270	1-2	9.2	60
100	IRL530		160	1-2	15	70
100	IRL540		77	1-2	28	115
60	IRLZ14		200	1-2	10	43
60	IRLZ24		100	1-2	17	60
60	IRLZ34		50	1-2	26	70
60	IRLZ44		28	1-2	50	115

2

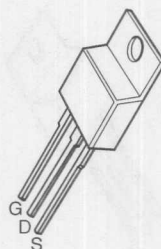


# TO-220AB DMOS Industry Part Numbers (continued)

## N-Channel

(Volts) Min	Device	$r_{DS(on)}$ Max ( $m\Omega$ )		$V_{GS(th)}$ (Volts)	$I_D$ (Amps) Max	$P_D$ (Watts) Max
		$V_{GS} = 10V$	$V_{GS} = 5V$			
100	MTP10N10E	250		2-4	10	70
50	MTP12N05E	120		2-4	12	60
50	MTP15N05E	100		2-4	15	70
60	MTP15N06E	120		2-4	15	70
80	MTP15N08EL		135	1-2	15	70
60	MTP3055E	150		2-4	12	40
60	MTP3055EL		180	1-2	12	40
60	MTP30N06EL		50	1-2	26	70
100	MTP33N10E	58		2-4	33	125
60	MTP36N06E	40		2-4	36	100
50	MTP50N05E	28		2-4	50	115
60	MTP50N06E	25		2-4	50	115
60	MTP50N06EL		28	1-2	50	115
50	SMP25N05	60		2-4	25	70
50	SMP25N05-45L		45	1-2	25	60
60	SMP25N06	60		2-4	25	70
100	SMP30N10	60		2-4	30	100
100	SMP40N10	60		2-4	40	125
50	SMP50N05	28		2-4	50	115
60	SMP50N06	28		2-4	50	115
60	SMP50N06-25	25		2-4	46	90
50	SMP60N05	23		2-4	50	115
60	SMP60N06	23		2-4	50	115
60	SMP60N06-14	14		2-4	60	125
60	SMP60N06-18	18		2-4	60	105

2



# TO-251/TO-252 DMOS

•  $V_{GS(th)} = 2$  to  $4V$

## N Channel

(Volts) Min	Device		$r_{DS(on)}$ Max (m $\Omega$ )	$I_D$ (Amps) Max	$P_D$ (Watts) Max
	TO-251	TO-252	$V_{GS} = 10V$		
60	NDU506A	NDD506A	50	19	72
	NDU506AE	NDD506AE			
	NDU506B	NDD506B	60	18	72
	NDU506BE	NDD506BE			
	NDU406A	NDD406A	100	15	40
	NDU406AE	NDD406AE			
	NDU406B	NDD406B	150	12	40
	NDU406BE	NDD406BE			
MTD3055E1	MTD3055E	150	8	20	

2

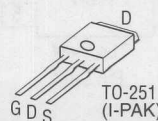
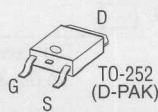
# TO-251/TO-252 Logic Level DMOS

•  $V_{GS(th)} = 1$  to  $2V$

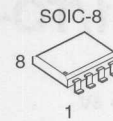
## N Channel

(Volts) Min	Device		$r_{DS(on)}$ Max (m $\Omega$ )	$I_D$ (Amps) Max	$P_D$ (Watts) Max
	TO-251	TO-252	$V_{GS} = 10V$		
60	NDU506AL	NDD506AL	50	19	72
	NDU506AEL	NDD506AEL			
	NDU506BL	NDD506BL	60	18	72
	NDU506BEL	NDD506BEL			
	NDU406AL	NDD406AL	100	15	40
	NDU406AEL	NDD406AEL			
	NDU406BL	NDD406BL	150	12	40
	NDU406BEL	NDD406BEL			
MTD3055EL1	MTD3055EL	180	12	40	

Note: Suffix E indicates the device is avalanche energy rated.



# SOIC-8 Dual/Single DMOS



- Second source of Siliconix Little Foot™ SI9xxx Series.

## N Channel

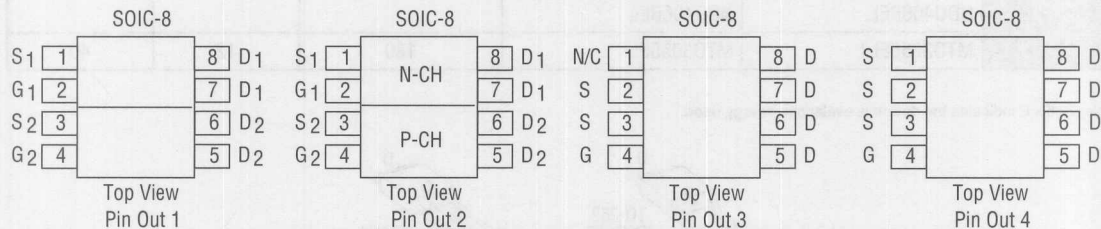
(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )			$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$	$V_{GS} = 2.7V$				
30	NDS9410	0.03	0.05		7	2	Single	3
30	NDS9936	0.05	0.08		5.0	2	Dual	1
60	NDS9945	0.1	0.2		3.5	2	Dual	1
50	NDS9955	0.13	0.2		3	2	Dual	1
20	NDS9956	0.1	0.2		3.5	2	Dual	1
50	NDS9959	0.3	0.5		2.0	2	Dual	1

2

## P Channel

(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )			$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$	$V_{GS} = 2.7V$				
-20	NDS9400	0.25	0.4		-2.5	2	Single	3
-20	NDS9405	0.1	0.16		-4.3	2	Single	3
-60	NDS9407*	0.15	0.24		-3.3	2	Single	4
-20	NDS9430	0.06	0.1		-5.3	2	Single	4
-12	NDS9933		0.13	0.21	3.2	2	Dual	1
-30	NDS9435	0.07	0.1		-5.3	2	Single	4
-12	NDS9433		0.075	0.11	5.1	2	Single	4
-20	NDS9947	0.11	0.19		-3.5	2	Dual	1
-60	NDS9948*	0.25	0.5		-2.3	2	Dual	1
-20	NDS9953	0.25	0.4		-2.3	2	Dual	1

\* Advance Information.

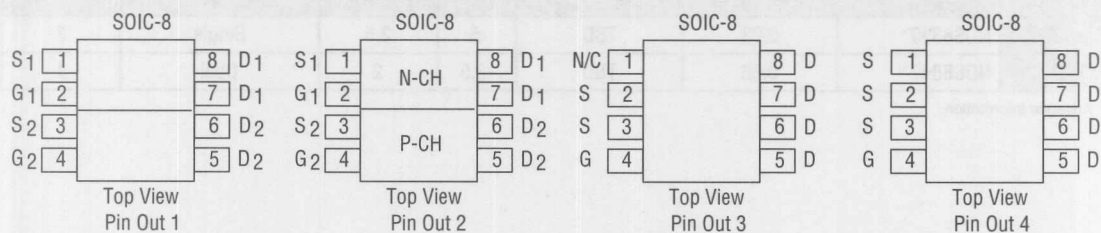
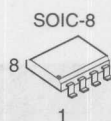


# SOIC-8 Dual/Single DMOS (continued)

## Complementary N-P Channel

DMOS MOSFETS

(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )			$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$	$V_{GS} = 2.7V$				
20	NDS9942	0.125	0.25		3	2	N Channel	2
-20		0.2	0.35		-2.5		P Channel	
20	NDS9943	0.125	0.25		3	2	N Channel	2
-20		0.16	0.3		-2.8		P Channel	
25	NDS9952	0.1	0.15		3	2	N Channel	2
-25		0.25	0.4		-2.3		P Channel	
20	NDS9958	0.1	0.15		3.5	2	N Channel	2
-20		0.11	0.19		-3		P Channel	

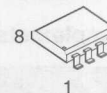


2



# Symmetric SOIC-8 Dual/Single DMOS

SOIC-8



- Superior performance than NDS9xxx Series.
- Special package technology to reduce package resistance.
- High cell density (5 million cells /in<sup>2</sup>) for low on-resistance.

## N Channel

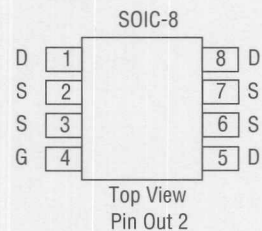
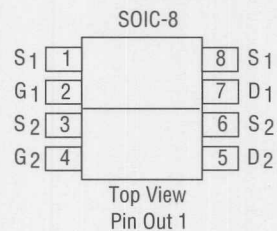
(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$				
20	NDS8410*	0.015	TBD	7	2.5	Single	2
20	NDS8936*	0.03	TBD	5	2	Dual	1

\* Advance Information.

## P Channel

(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$				
-20	NDS8330*	0.03	TBD	-5	2.5	Single	2
-20	NDS8847*	0.06	TBD	-3.5	2	Dual	1

\* Advance Information.



# SuperSot DMOS (SOT-23)

- High current handling
- High cell density (5 million cells/in<sup>2</sup>) for low on-resistance.

$V_{(BR)DSS}$ (Volts) Min	Device		$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (Amps) Max	Package	$P_D$ (mW) Max
	N-Channel	P-Channel	$V_{GS} = 10V$	$V_{GS} = 4.5V$			
20	NDS351N		TBD	0.25	0.9	TO-236*	400
-20		NDS352P	TBD	0.5	0.6	TO-236*	400

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

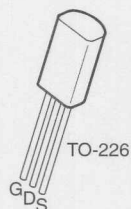


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## TO-226, SOT-223 DMOS

$V_{(BR)DSS}$ (Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (Amps) Max	$V_{GS(th)}$ (Volts)	Package	$P_D$ (mW) Max
		$V_{GS} = 10V$	$V_{GS} = 5V$				
100V	BUK482-100*	0.28		1.8	2.1-4	SOT-223	1.8
60V	NDF206AL*		0.12	2.0	1-2	TO-226	1
	NDF206BL*		0.15	1.8	1-2	TO-226	1

\* Advance Information.



# Signal DMOS (TO-92, TO-236)

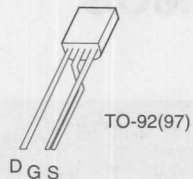
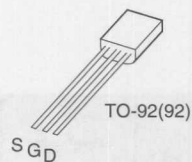
$V_{(BR)DSS}$ (Volts) Min	Device		$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (Amps) Max	$V_{GS(th)}$ (Volts)	Package	$P_D$ (mW) Max
	N-Channel	P-Channel	$V_{GS} = 10V$	$V_{GS} = 5V$				
100	BSS123		6.0	10.0 @ 4.5V	0.17	0.8 to 2	TO-236*	300
60	BS270		2.0	3.0	0.4	1 to 2.5	TO-92(97)	625
	NDF7000A		2.0		0.4	0.8 to 3	TO-92(92)	625
	NDS7002A		2.0	3.0	0.28	1 to 2.5	TO-236*	300
	2N7000		5.0		0.2	0.8 to 3	TO-92(92)	400
	BS170		5.0		0.5	0.8 to 3	TO-92(97)	830
	MMBF170		5.0		0.5	0.8 to 3	TO-236*	300
	2N7002		7.5	7.5	0.115	1 to 2.5	TO-236*	200
50	BSS138		3.5	6.0 @ 4.5V	0.22	0.8 to 1.6	TO-236*	300
-60		NDS0610	10	20 @ 4.5V	0.12	-1 to -3.5	TO-236*	300
-50		BSS84**	10		0.13	-0.8 to -2	TO-236*	300

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

\*\* Advance Information.

2



# Junction FETS

JFET General Purpose .....	3-1
JFET RF, VHF, UHF Amplifiers .....	3-3
JFET Low Frequency/Low Noise Amplifiers .....	3-4
JFET Switches/Choppers .....	3-5
JFET Ultra Low Input Current Amplifiers .....	3-8
Dual JFETs .....	3-9



# JFET General Purpose

## P Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (mmho)		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	en @ Freq		Package	
		(V)		(V)	(nA)	Min	Max			Max	Max		(Hz)
		Min	Max										
2N3820	20		8	-10	10000	0.8	5	32	16			TO-92(94)	
PN5033	20	0.3	2.5	-10	1000	1	5	25	7	100	100	TO-92(92)	
2N5460	40	0.75	6	-15	1000	1	4	7	2	115	100	TO-92(92)	
MMBF5460	40	0.75	6	-15	1000	1	4	7	2	115	100	TO-236*	
2N5461	40	1	7.5	-15	1000	1.5	5	7	2	115	100	TO-92(92)	
MMBF5461	40	1	7.5	-15	1000	1.5	5	7	2	115	100	TO-236*	
2N5462	40	1.8	9	-15	1000	2	6	7	2	115	100	TO-92(92)	
MMBF5462	40	1.8	9	-15	1000	2	6	7	2	115	100	TO-236*	
MMBFJ270	30	0.5	2	-15	1	6	15	t20	t5	t10	1000	TO-236*	
J270	30	0.5	2	-15	1	6	15	t20	t5	t10	1000	TO-92(94)	
MMBFJ271	30	1.5	4.5	-15	1	8	18	t20	t5	t10	1000	TO-236*	
J271	30	1.5	4.5	-15	1	8	18	t20	t5	t10	1000	TO-92(94)	

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

t = typical value



TO-92(92)



TO-18(11)



TO-92(94)



TO-236  
(SOT-23)

# JFET General Purpose (continued)

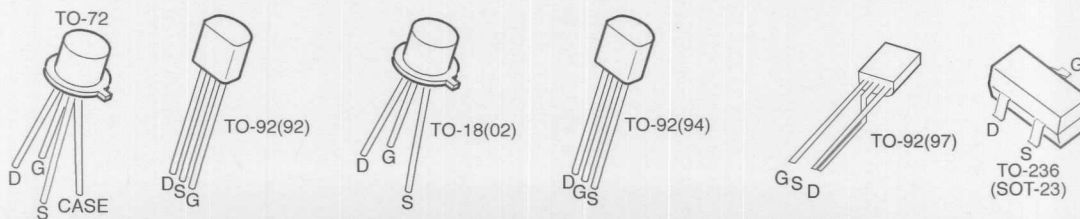
## N Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (mmho)		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	en @ Freq		Package
		(V)		(V)	(nA)	Min	Max			Max	(Hz)	
		Min	Max									
2N3684	50	2	5	20	1	2	3	4	1.2	150	20	TO-72
2N3686	50	0.6	2	20	1	1	2	4	1.2	150	20	TO-72
2N3822	50		6	15	0.5	3	6.5	6	3	200	10	TO-72
PN4303	30		6	20	10	2		6	3	100	1000	TO-92(92)
2N4338	50	0.3	1	15	100	0.6	1.8	7	3			TO-18(02)
2N4339	50	0.6	1.8	15	100	0.8	2.4	7	3			TO-18(02)
2N4340	50	1	3	15	100	1.3	3	7	3			TO-18(02)
2N5457	25	0.5	6	15	10	2	5	7	3			TO-92(92)
MMBF5457	25	0.5	6	15	10	2	5	7	3			TO-236*
2N5458	25	1	7	15	10	1.5	5.5	7	3			TO-92(92)
MMBF5458	25	1	7	15	10	1.5	5.5	7	3			TO-236*
2N5459	25	2	8	15	10	2	6	7	3			TO-92(92)
MMBF5459	25	2	8	15	10	2	6	7	3			TO-236*
BF244A	30	0.5	8	15	10	3	6.5	t4	t1.1	t1.5	100	TO-92(94)
BF245A	30	0.5	8	15	10	3	6.5	t4	t1.1			TO-92(97)
BF245B	30	0.5	8	15	10	3	6.5	t4	t1.1			TO-92(97)
BF245C	30	0.5	8	15	10	3	6.5	t4	t1.1			TO-92(97)
BF247B	25	0.6	14.5	15	10	8		t11	t3.5			TO-92(97)
BF256C	30					4.5			t0.7	t7.5	800	TO-92(97)
BSR58	40	0.8	4	15	1				t5			TO-236*
J201	40	0.3	1.5	20	10	0.5						TO-92(92)
MMBFJ201	40	0.3	1.5	20	10	0.5						TO-236*
MMBFJ202	40	0.8	4	20	10	1						TO-236*
J202	40	0.8	4	20	10	1						TO-92(92)
MMBFJ203	40	2	10	20	10	1.5						TO-236*
J211	25	2.5	4.5	15	1	6	12					TO-92(92)

\* TO-236AB is standard for all devices.

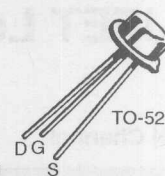
Please refer to Surface Mount section for TO-236 Device Marking.

t = typical value



# JFET RF, VHF, UHF Amplifiers

Junction FETs



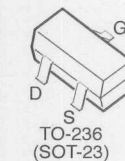
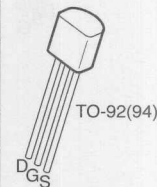
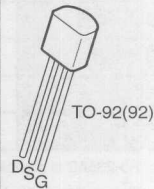
## N Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				Re(Y <sub>fs</sub> ) (mmho) @ f		Re(Y <sub>os</sub> ) (μmho) @ f		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	NF (dB) @ R <sub>g</sub> = 1k		Package
		(V)		(V)	(nA)	Min	(MHz)	Max	(MHz)			Max	(MHz)	
		Min	Max											
2N3819	25		8	15	2	1.6	100			8	4			TO-92(94)
2N4416	30	2.5	6	15	1	4	400	100	400	4	0.9	4	400	TO-72
PN4416	30	2.5	6	15	1	4	400	100	400	4	0.9	4	400	TO-92(92)
MMBF4416	30	2.5	6	15	1	4	400	100	400	4	0.9	4	400	TO-236*
2N5245	30	1	6	15	10	4	400	100	400	4.5	1.0	4	400	TO-92(97)
2N5246	30	0.5	4	15	10	2.5	400	100	400	4.5	1.0	4	400	TO-92(97)
2N5247	30	1.5	8	15	10	4	400	150	400	4.5	1.0	4	400	TO-92(97)
2N5397	25	1	6	10	1	5.5	450	400	450	5	1.2	3.5	450	TO-72
2N5484	25	0.3	3	15	10	2.5	100	75	100	5	1	3	100	TO-92(92)
MMBF5484	25	0.3	3	15	10	2.5	100	75	100	5	1	3	100	TO-236*
2N5485	25	0.5	4	15	10	3	400	100	400	5	1	4	400	TO-92(92)
MMBF5485	25	0.5	4	15	10	3	400	100	400	5	1	4	400	TO-236*
2N5486	25	2	6	15	10	3.5	400	100	400	5	1	4	400	TO-92(92)
MMBF5486	25	2	6	15	10	3.5	400	100	400	5	1	4	400	TO-236*
2N5949	30	3	7	15	100	3	100	150	100	6	2	5	100	TO-92(97)
2N5950	30	2.5	6	15	100	3	100	125	100	6	2	5	100	TO-92(97)
2N5951	30	2	5	15	100	3	100	100	100	6	2	5	100	TO-92(97)
2N5952	30	1.3	4.5	15	100	1	100	75	100	6	2	5	100	TO-92(97)
2N5953	30	0.8	3	15	100	1	100	50	100	6	2	5	100	TO-92(97)
J300	25	1	6	10	1	4.5	0.001	200	0.001	5.5	1.7			TO-92(92)
MMBFJ304	30	2	6	15	1	t4.2	400	t80	100					TO-236*
J304	30	2	6	15	1	t4.2	400	t80	100					TO-92(92)
J305	30	0.5	3	15	1	t3.0	400	t80	100					TO-92(92)
MMBFJ305	30	0.5	3	15	1	t3.0	400	t80	100					TO-236*
MMBFJ309	25	1	4	10	1	10	0.001	150	0.001	7.5	2.5			TO-236*
J309	25	1	4	10	1	10	0.001	150	0.001	7.5	2.5			TO-92(92)
MMBFJ310	25	2	6.5	10	1	8	0.001	150	0.001	7.5	2.5			TO-236*
J310	25	2	6.5	10	1	8	0.001	150	0.001	7.5	2.5			TO-92(92)
U309	25	1	4	10	1	10	0.001	150	100	5	2.5			TO-52
U310	25	2.5	6	10	1	10	0.001	150	100	5	2.5			TO-52

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

t = typical value



3



# JFET Low Frequency/Low Noise Amplifiers

## N Channel

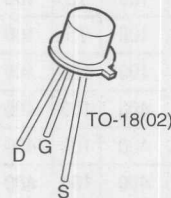
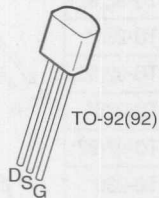
Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (mmho) @ f		Ciss (pF) Max	Crss (pF) Max	en @ Freq		Package
		(V)		(V)	(nA)	Min	KHz			Max	(Hz)	
		Min	Max									
2N4393	40	0.5	3	20	1	t12	1	14	3.5	t8	10	TO-18(02)
MMBF4393	40	0.5	3	20	1	t12	1	14	3.5	t8	10	TO-236*
PN4393	40	0.5	3	20	1	t12	1	14	3.5	t8	10	TO-92(92)
PF5102	40	0.7	1.6	15	1	7.5	1	t12	t4	3.5	1000	TO-92(92)
PF5103	40	1.2	2.7	15	1	7.5	1	t12	t4	3.5	1000	TO-92(92)

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

t = typical value

3



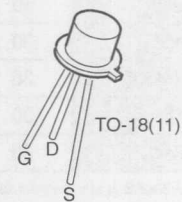
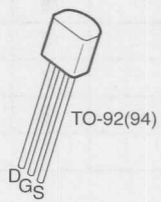
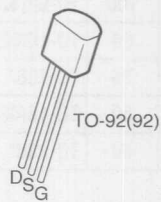
# JFET Switches/Choppers

## P Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>p</sub> @ V <sub>DS</sub> I <sub>D</sub>				R <sub>DS(on)</sub> (Ω) @ I <sub>D</sub>		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	ton (ns) Max	toff (ns) Max	Package
		(V)		(V)	(nA)	Min	(mA)					
		Min	Max									
2N5018	30		10	-15	1000	75	1	45	10	35	65	TO-18(11)
2N5019	30		5	-15	1000	150	1	45	10	90	125	TO-18(11)
MMBF5114	30	5	10	-15	1	75	1	25	7	16	21	TO-236*
2N5115	30	3	6	-15	1	100	1	25	7	30	38	TO-18(11)
MMBF5115	30	3	6	-15	1	100	1	25	7	30	38	TO-236*
2N5116	30	1	4	-15	1	150	1	25	7	42	60	TO-18(11)
MMBF5116	30	1	4	-15	1	150	1	25	7	42	60	TO-236*
MMBFJ174	30	5	10	-15	10	85	1	11	5.5	2	5	TO-236*
J174	30	5	10	-15	10	85	1	11	5.5	2	5	TO-92(94)
MMBFJ175	30	3	6	-15	10	125	0.5	11	5.5	5	10	TO-236*
J175	30	3	6	-15	10	125	0.5	11	5.5	5	10	TO-92(94)
MMBFJ176	30	1	4	-15	10	250	0.25	11	5.5	15	15	TO-236*
J176	30	1	4	-15	10	250	0.25	11	5.5	15	15	TO-92(94)
MMBFJ177	30	0.8	2.25	-15	10	300	0.1	11	5.5	20	20	TO-236*
J177	30	0.8	2.25	-15	10	300	0.1	11	5.5	20	20	TO-92(94)
P1086	30		10	-15	1000	75	1	45	10	35	65	TO-92(92)
P1087	30		5	-15	1000	150	1	45	10	90	125	TO-92(92)

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.



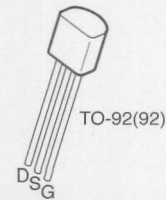
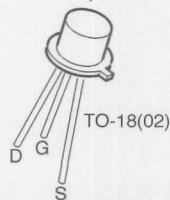
# JFET Switches/Choppers (continued)

## N Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				R <sub>DS(on)</sub> (Ω) @ I <sub>D</sub>		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	ton (ns) Max	toff (ns) Max	Package
		(V)		(V)	(nA)	(Ω)	(mA)					
		Min	Max									
2N3971	40	2	5	20	1	60	1	25	6	30	60	TO-18(02)
2N4091	40	5	10	20	1	30	1	16	5	25	40	TO-18(02)
MMBF4091	40	5	10	20	1	30	1	16	5	25	40	TO-236*
PN4091	40	5	10	20	1	30	1	16	5	25	40	TO-92(92)
2N4092	40	2	7	20	1	50	1	16	5	35	60	TO-18(02)
MMBF4092	40	2	7	20	1	50	1	16	5	35	60	TO-236*
PN4092	40	2	7	20	1	50	1	16	5	35	60	TO-92(92)
2N4093	40	1	5	20	1	80	1	16	5	60	80	TO-18(02)
MMBF4093	40	1	5	20	1	80	1	16	5	60	80	TO-236*
PN4093	40	1	5	20	1	80	1	16	5	60	80	TO-92(92)
2N4391	40	4	10	20	1	30	1	14	3.5	15	20	TO-18(02)
MMBF4391	40	4	10	20	1	30	1	14	3.5	15	20	TO-236*
PN4391	40	4	10	20	1	30	1	14	3.5	15	20	TO-92(92)
2N4392	40	2	5	20	1	60	1	14	3.5	15	35	TO-18(02)
MMBF4392	40	2	5	20	1	60	1	14	3.5	15	35	TO-236*
PN4392	40	2	5	20	1	60	1	14	3.5	15	35	TO-92(92)
2N4393	40	0.5	3	20	1	100	1	14	3.5	15	55	TO-18(02)
MMBF4393	40	0.5	3	20	1	100	1	14	3.5	15	55	TO-236*
PN4393	40	0.5	3	20	1	100	1	14	3.5	15	55	TO-92(92)
2N4856	40	4	10	15	0.5	25		18	8	9	25	TO-18(02)
2N4858	40	0.8	4	15	0.5	60		18	8	20	100	TO-18(02)
PN4858	40	0.8	4	15	0.5	60		18	8	20	100	TO-92(92)
2N4859	30	4	10	15	0.5	25		18	8	9	25	TO-18(02)
MMBF4859	30	4	10	15	0.5	25		18	8	9	25	TO-236*
2N4860	30	2	6	15	0.5	40		18	8	10	50	TO-18(02)
MMBF4860	30	2	6	15	0.5	40		18	8	10	50	TO-236*

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.



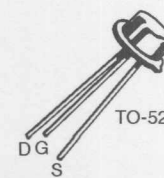
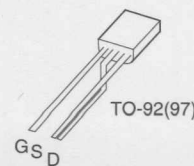
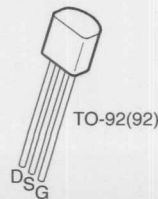
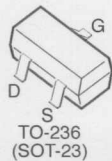
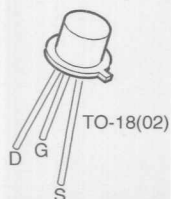
# JFET Switches/Choppers (continued)

## N Channel (Continued)

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				R <sub>DS(on)</sub> (Ω) @ I <sub>D</sub>		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	ton (ns) Max	toff (ns) Max	Package
		(V)		(V)	(nA)	Min	(mA)					
		Min	Max									
2N4860A	30	2	6	15	0.5	40		10	3.5	10	40	TO-18(02)
2N4861	30	0.8	4	15	0.5	60		18	8	20	100	TO-18(02)
MMBF4861	30	0.8	4	15	0.5	60		18	8	20	100	TO-236*
2N5432	25	4	10	5	3	5	10	30	15	5	36	TO-52
PN5432	25	4	10	5	3	5	10	30	15	5	36	TO-92(92)
2N5433	25	3	9	5	3	7	10	30	15	5	36	TO-52
2N5434	25	1	4	5	3	10	10	30	15	5	36	TO-52
PN5434	25	1	4	5	3	10	10	30	15	5	36	TO-92(92)
2N5555	25		10	12	10	150		5	1.2	10	25	TO-92(92)
2N5638	30		12	15	1	30	1	10	4	4	15	TO-92(92)
2N5639	30		8	15	1	60	1	10	4	14	30	TO-92(92)
J105	25	4.5	10	5	1000	3	33					TO-92(92)
J106	25	2	6	5	1000	6	17					TO-92(92)
J108	25	3	10	5	1000	8	10					TO-92(92)
J109	25	2	6	5	1000	12	10					TO-92(92)
J110	25	0.5	4	5	1000	18	10					TO-92(92)
MMBFJ111	35	3	10	5	1000	30	1					TO-236*
J111	35	3	10	5	1000	30	1					TO-92(92)
MMBFJ112	35	1	5	5	1000	50	1					TO-236*
J112	35	1	5	5	1000	50	1					TO-92(92)
MMBFJ113	35	0.5	3	5	1000	100	1					TO-236*
J113	35	0.5	3	5	1000	100	1					TO-92(92)
TIS74	30	2	6	15	4	40		18	8	10	50	TO-92(97)
TIS75	30	0.8	4	15	4	60		18	8	20	100	TO-92(97)
U1897	40	5	10	20	1	30	1	16	3.5	25	40	TO-92(92)
U1898	40	2	7	20	1	50	1	16	3.5	35	60	TO-92(92)
U1899	40	1	5	20	1	80	1	16	3.5	60	80	TO-92(92)

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.



# JFET Ultra Low Input Current Amplifiers

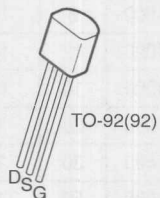
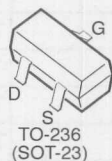
## N Channel

Device	BV <sub>GSS</sub> (V) Min	I <sub>GSS</sub> (pA) Max	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (μmho)		Ciss (pF) Max	Crss (pF) Max	Package
			(V)		(V)	(nA)	Min	Max			
			Min	Max							
MMBF4117	40	10	0.6	2.8	10	1	20	210	3	1.5	TO-236*
PN4117	40	10	0.6	2.8	10	1	20	210	3	1.5	TO-92(92)
2N4118	40	10	1	3	10	1	80	250	3	1.5	TO-72
MMBF4118	40	10	1	3	10	1	80	250	3	1.5	TO-236*
MMBF4119	40	10	2	6	10	1	100	330	3	1.5	TO-236*
2N4117A	40	1	0.6	1.8	10	1	70	210	3	1.5	TO-72
PN4117A	40	1	0.6	2.8	10	1	70	210	3	1.5	TO-92(92)
2N4118A	40	1	1	3	10	1	80	250	3	1.5	TO-72

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

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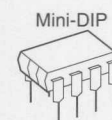
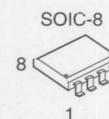
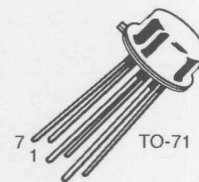
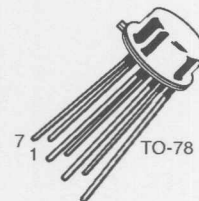


# Dual JFETs

## N Channel

Device	V <sub>p</sub>		G <sub>fs</sub> (mmho)		V <sub>GS1-2</sub> V <sub>os</sub> (mV) Max	Drift (μV/C) ΔV <sub>GS</sub> Max	I <sub>DSS</sub> Match %	G <sub>fs</sub> Match %	Package
	(V) Min	Max	Min	Max					
2N3955	1	4.5	1	3	10	25	5	5	TO-71
2N3956	1	4.5	1	3	15	50	5	5	TO-71
2N3958	1	4.5	1	3	25	100	15	15	TO-71
2N5197	0.7	4.0	1	4	5	10	5	3	TO-71
2N5564	0.5	3	7.5	12.5	5	10	5	5	TO-71
2N5565	0.5	3	7.5	12.5	10	25	5	10	TO-71
2N5566	0.5	3	7.5	12.5	20	50	5	10	TO-71
2N5906	0.6	4.5	70μ	0.25	5	5	5	3	TO-78
2N5908	0.6	4.5	70μ	0.25	10	20	5	5	TO-78
2N5909	0.6	4.5	70μ	0.25	15	40	5	5	TO-78
2N5911	1	5	5	10	10	20	5	5	TO-78
2N5912	1	5	5	10	15	40	5	5	TO-78
2N6485	0.7	4	1	4	15	25	5	5	TO-71
NPDS5564	0.5	3	7.5	12.5	5	10	5	5	Mini-Dip
NPDS5565	0.5	3	7.5	12.5	10	25	5	10	Mini-Dip
NPDS5566	0.5	3	7.5	12.5	20	50	5	10	Mini-Dip
NPDS8303	0.5	3.5	1	4	15	t15			Mini-Dip
NPDS404	0.5	2.5	2	7	15	25			SOIC-8
NPDS405	0.5	2.5	2	7	20	40			SOIC-8
NPDS406	0.5	2.5	2	7	40	80			SOIC-8
NPDS5564	0.5	3	7.5	12.5	5	10		5	SOIC-8
NPDS5565	0.5	3	7.5	12.5	10	25		10	SOIC-8
NPDS5566	0.5	3	7.5	12.5	20	50		10	SOIC-8
NPDS5911	1	5	5	10	10	20	5	5	SOIC-8
NPDS5912	1	5	5	10	15	40	5	5	SOIC-8
U257	1	5	5	10	100		15	15	TO-78
U401	0.5	2.5	2	7	5	10			TO-71
U403	0.5	2.5	2	7	10	25			TO-71
U406	0.5	2.5	2	7	40	80			TO-71

t=typical value





# Diodes

Silicon Single Junction Diodes .....4-1





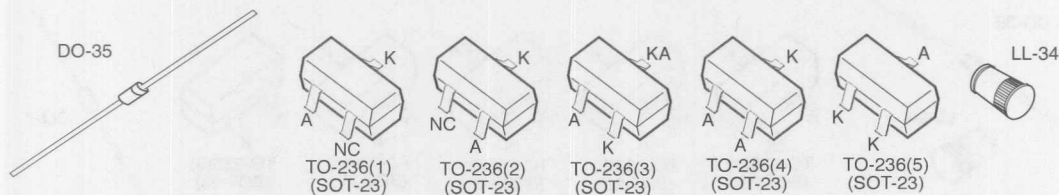
# Silicon Single Junction Diodes

V <sub>RRM</sub> (Volts) Min	Device	I <sub>RRM</sub> (nA) Max	V <sub>FM</sub> @ I <sub>F</sub>		t <sub>rr</sub> (ns) Max	Package*
			(Volts) Max	(mA)		
250	1N486B	50	1.0	100		DO-35
	BAV21	100	1.0	100	50	DO-35
200	1N3070	100	1.0	100	50	DO-35
	1N459	25	1.0	3.0		DO-35
	1N459A	25	1.0	100		DO-35
	1N485B	25	1.0	100		DO-35
	1N4938	100	1.0	100	50	DO-35
	1S923	100	1.2	200		DO-35
	BAS21	100	1.0	100	50	TO-236*(1)
	BAV20	100	1.0	100	50	DO-35
	FDH400	100	1.0	200	50	DO-35
	MMBD1401	100	1.0	200	50	TO-236*(1)
	MMBD1402	100	1.0	200	50	TO-236*(2)
	MMBD1403	100	1.0	200	50	TO-236*(3)
	MMBD1404	100	1.0	200	50	TO-236*(4)
	MMBD1405	100	1.0	200	50	TO-236*(5)
	MMBD1501A	1.0	1.1	200		TO-236*(1)
	MMBD1502A	1.0	1.1	200		TO-236*(2)
	MMBD1503A	1.0	1.1	200		TO-236*(3)
MMBD1504A	1.0	1.1	200		TO-236*(4)	
MMBD1505A	1.0	1.1	200		TO-236*(5)	
150	1N3595	1.0	1.0	200		DO-35
	1N458A	25	1.0	100		DO-35
	1N6099	1.0	1.0	200		DO-35

\* TO-236AB is standard for all devices.  
Please see Surface Mount section for LL-34 and TO-236 Device Marking.

V <sub>RRM</sub> (Volts) Min	Device	I <sub>RRM</sub> (nA) Max	V <sub>FM</sub> @ I <sub>F</sub>		t <sub>rr</sub> (ns) Max	Package*
			(Volts) Max	(mA)		
150	1S922	100	1.2	200		DO-35
	BAS20	100	1.0	100	50	TO-236*(1)
	BAX16	100	1.0	1.0	120	DO-35
	FDH300A	1.0	1.0	200		DO-35
	FDH333	3.0	1.05	200		DO-35
	FDH444	50	1.1	200	60	DO-35
	FDLL300	1.0	1.0	200		LL-34*
	FDLL3595	1.0	1.0	200		LL-34*
	125	BAY72	100	1.0	100	50
BAY73		5	1.0	200		DO-35
120	BAV19	100	1.0	100	50	DO-35
	BAY80	100	1.0	150		DO-35
	BAS19	100	1.0	100	50	TO-236*(1)
	BAS29	100	0.84	50	50	TO-236*(1)
	BAS31	100	0.84	50	50	TO-236*(3)
	BAS35	100	0.84	50	50	TO-236*(5)
100	1N4148	25	1.0	10	4.0	DO-35
	1N4149	25	1.0	10	4.0	DO-35
	1N4446	25	1.0	20	4.0	DO-35
	1N4447	25	1.0	20	4.0	DO-35
	1N4448	25	1.0	100	4.0	DO-35
	1N914	25	1.0	10	4.0	DO-35
	1N914A	25	1.0	20	4.0	DO-35
	1N914B	25	1.0	100	4.0	DO-35

\* TO-236AB is standard for all devices.  
Please see Surface Mount section for LL-34 and TO-236 Device Marking.



## Silicon Single Junction Diodes (continued)

$V_{RRM}$ (Volts) Min	Device	$I_{RRM}$ (nA) Max	$V_{FM}$ @ $I_F$		$t_{rr}$ (ns) Max	Package*
			(Volts) Max	(mA)		
100	1N916	25	1.0	10	4.0	DO-35
	1N916B	25	1.0	30	4.0	DO-35
	1S921	100	1.2	200		DO-35
	FDLL4148	25	1.0	10	4.0	LL-34*
	FDLL4448	25	1.0	100	4.0	LL-34*
	FDLL914	25	1.0	10	4.0	LL-34*
	MMBD1201	25	1.0	200	4.0	TO-236*(1)
	MMBD1202	25	1.0	200	4.0	TO-236*(2)
	MMBD1203	25	1.0	200	4.0	TO-236*(3)
	MMBD1204	25	1.0	200	4.0	TO-236*(4)
	MMBD1205	25	1.0	200	4.0	TO-236*(5)
	MMBD4148	25	1.0	10	4.0	TO-236*(1)
	MMBD914	25	1.0	10	4.0	TO-236*(1)
80	1N483B	25	1.0	100		DO-35
	1N5282	100	1.3	500	2.0	DO-35
75	1N3064	100	1.0	10	4.0	DO-35
	1N3600	100	1.0	200	4.0	DO-35
	1N4150	100	1.0	200	4.0	DO-35
	1N4151	50	1.0	50	2.0	DO-35
	1N4153	50	0.88	20	2.0	DO-35
	1N4305	100	0.85	10	2.0	DO-35
	1N4454	100	1.0	10	4.0	DO-35
	BAS16	1000	1.1	50	6.0	TO-236*(1)
	BAW62	25	1.0	100	4.0	DO-35
	BAW76	100	1.0	100	2.0	DO-35
	FDH600	100	1.0	200	4.0	DO-35

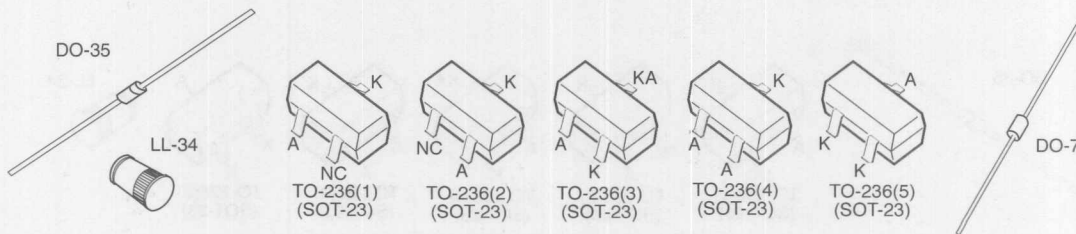
\* TO-236AB is standard for all devices.

Please see Surface Mount section for LL-34 and TO-236 Device Marking.

$V_{RRM}$ (Volts) Min	Device	$I_{RRM}$ (nA) Max	$V_{FM}$ @ $I_F$		$t_{rr}$ (ns) Max	Package*
			(Volts) Max	(mA)		
75	FDLL4150	100	1.0	200	4.0	LL-34*
	FDLL600	100	1.0	200	4.0	LL-34*
70	1N457	25	1.0	20		DO-35
	1N457A	25	1.0	100		DO-35
	BAV70	5000	1.1	50	6.0	TO-236*(4)
	BAV99	2500	1.1	50	6.0	TO-236*(3)
	BAW56	2500	1.1	50	6.0	TO-236*(5)
60	BAV18	100	1.0	100	50	DO-35
50	1S920	100	1.2	200		DO-35
	BAV74	100	1.0	100	4.0	TO-236*(4)
	BAY71	100	1.0	20	2.0	DO-35
40	1N4152	50	0.88	20	2.0	DO-35
35	1N4154	100	1.0	30	2.0	DO-35
30	1N456A	25	1.0	100		DO-35
	FD700	50	1.1	50	0.70	DO-7
	FJT1100	0.001	1.05	10		DO-7
	MMBD1701	50	1.1	50	0.70	TO-236*(1)
	MMBD1702	50	1.1	50	0.70	TO-236*(2)
	MMBD1703	50	1.1	50	0.70	TO-236*(3)
	MMBD1704	50	1.1	50	0.70	TO-236*(4)
	MMBD1705	50	1.1	50	0.70	TO-236*(5)
20	1N4244	100	1.0	20	0.75	DO-7
	1N4376	100	1.1	50	0.75	DO-7
	FJT1101	0.005	1.1	50		DO-7
15	BAY82	100	1.0	20	0.75	DO-7
	FD777	100	1.0	20	0.75	DO-7

\* TO-236AB is standard for all devices.

Please see Surface Mount section for LL-34 and TO-236 Device Marking.



# Zeners

DO-35 Half Watt Zener Diodes .....	5-1
TO-236AB (SOT-23 Zener Diodes) .....	5-3
DO-41 1 Watt Zener Diodes .....	5-4
DO-41 1.3 Watt Zener Diodes .....	5-4



# DO-35 Half Watt Zener Diodes

V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)
2.7				
3.3	1N746A	20	28	10
3.6	1N747A	20	24	10
3.9	1N748A	20	23	10
4.3	1N749A	20	22	2
4.7	1N750A	20	19	2
5.1	1N751A	20	17	1
5.6	1N752A	20	11	1
6.0				
6.2	1N753A	20	7.0	0.1
6.8	1N754A	20	5.0	0.1
	1N957B	18.5	4.5	150
7.5	1N755A	20	6.0	0.1
	1N958B	16.5	5.5	75
8.2	1N756A	20	8.0	0.1
	1N959B	15	6.5	50
8.7				
9.1	1N757A	20	10	0.1
	1N960B	14	7.5	25
10	1N758A	20	17	0.1
	1N961B	12.5	8.5	10
11	1N962B	11.5	9.5	5.0
12	1N759A	20	30	0.1
	1N963B	10.5	11.5	5.0
13	1N964B	9.5	13	5.0
14				
15	1N965B	8.5	16	5.0
16	1N966B	7.8	17	5.0
17				
18	1N967B	7.0	21	5.0
19				
20	1N968B	6.2	25	5.0
22	1N969B	5.6	29	5.0
24	1N970B	5.2	33	5.0
25				
27	1N971B	4.6	41	5.0
28				
30	1N972B	4.2	49	5.0
33	1N973B	3.8	58	5.0

V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)
2.7	1N5223B	20	30	75
3.3	1N5226B	20	28	25
3.6	1N5227B	20	24	15
3.9	1N5228B	20	23	10
4.3	1N5229B	20	22	5.0
4.7	1N5230B	20	19	5.0
5.1	1N5231B	20	17	5.0
5.6	1N5232B	20	11	5.0
6.0	1N5233B	20	7.0	5.0
6.2	1N5234B	20	7.0	3.0
6.8	1N5235B	20	5.0	3.0
7.5	1N5236B	20	6.0	3.0
8.2	1N5237B	20	8.0	3.0
8.7	1N5238B	20	8.0	3.0
9.1	1N5239B	20	10	3.0
10	1N5240B	20	17	3.0
11	1N5241B	20	22	2.0
12	1N5242B	20	30	1.0
13	1N5243B	9.5	13	0.5
14	1N5244B	9.0	15	0.1
15	1N5245B	8.5	16	0.1
16	1N5246B	7.8	17	0.1
17	1N5247B	7.4	19	0.1
18	1N5248B	7.0	21	0.1
19	1N5249B	6.6	23	0.1
20	1N5250B	6.2	25	0.1
22	1N5251B	5.6	29	0.1
24	1N5252B	5.2	33	0.1
25	1N5253B	5.0	35	0.1
27	1N5254B	4.6	41	0.1
28	1N5255B	4.5	44	0.1
30	1N5256B	4.2	49	0.1
33	1N5257B	3.8	58	0.1

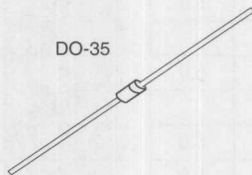
## DO-35 Half Watt Zener Diodes (continued)

$V_Z$ (Volts)	Tolerance 5%	$I_{ZT}$ (mA)	$Z_Z$ ( $\Omega$ )	$I_R$ ( $\mu$ A)
3.3	BZX55C3V3	5.0	85	2.0
3.6	BZX55C3V6	5.0	85	2.0
3.9	BZX55C3V9	5.0	85	2.0
4.3	BZX55C4V3	5.0	75	1.0
4.7	BZX55C4V7	5.0	60	0.5
5.1	BZX55C5V1	5.0	35	0.1
5.6	BZX55C5V6	5.0	25	0.1
6.2	BZX55C6V2	5.0	10	0.1
6.8	BZX55C6V8	5.0	8.0	0.1
7.5	BZX55C7V5	5.0	7.0	0.1
8.2	BZX55C8V2	5.0	7.0	0.1
9.1	BZX55C9V1	5.0	10	0.1
10	BZX55C10	5.0	15	0.1
11	BZX55C11	5.0	20	0.1
12	BZX55C12	5.0	20	0.1
13	BZX55C13	5.0	26	0.1
15	BZX55C15	5.0	30	0.1
16	BZX55C16	5.0	40	0.1
18	BZX55C18	5.0	50	0.1
20	BZX55C20	5.0	55	0.1
22	BZX55C22	5.0	55	0.1
24	BZX55C24	5.0	80	0.1
27	BZX55C27	5.0	80	0.1
30	BZX55C30	5.0	80	0.1
33	BZX55C33	5.0	80	0.1

$V_Z$ (Volts)	Tolerance 5%	$I_{ZT}$ (mA)	$Z_Z$ ( $\Omega$ )	$I_R$ ( $\mu$ A)
3.3	BZX79C3V3	5.0	95	2.0
3.6	BZX79C3V6	5.0	90	2.0
3.9	BZX79C3V9	5.0	90	2.0
4.3	BZX79C4V3	5.0	90	1.0
4.7	BZX79C4V7	5.0	80	3.0
5.1	BZX79C5V1	5.0	60	2.0
5.6	BZX79C5V6	5.0	40	1.0
6.2	BZX79C6V2	5.0	10	3.0
6.8	BZX79C6V8	5.0	15	2.0
7.5	BZX79C7V5	5.0	15	0.1
8.2	BZX79C8V2	5.0	15	0.1
9.1	BZX79C9V1	5.0	15	0.1
10	BZX79C10	5.0	20	0.1
11	BZX79C11	5.0	20	0.1
12	BZX79C12	5.0	25	0.1
13	BZX79C13	5.0	30	0.1
15	BZX79C15	5.0	30	0.1
16	BZX79C16	5.0	40	0.1
18	BZX79C18	5.0	45	0.1
20	BZX79C20	5.0	55	0.1
22	BZX79C22	5.0	55	0.1
24	BZX79C24	5.0	70	0.1
27	BZX79C27	2.0	80	0.1
30	BZX79C30	2.0	80	0.1
33	BZX79C33	2.0	80	0.1

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DO-35



# TO-236AB (SOT-23 Zener Diodes)



V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)
3.3	MMBZ5226B	20	28	25
3.6	MMBZ5227B	20	24	15
3.9	MMBZ5228B	20	23	10
4.3	MMBZ5229B	20	22	5.0
4.7	MMBZ5230B	20	19	5.0
5.1	MMBZ5231B	20	17	5.0
5.6	MMBZ5232B	20	11	5.0
6.0	MMBZ5233B	20	7.0	5.0
6.2	MMBZ5234B	20	7.0	5.0
6.8	MMBZ5235B	20	5.0	3.0
7.5	MMBZ5236B	20	6.0	3.0
8.2	MMBZ5237B	20	8.0	3.0
8.7	MMBZ5238B	20	8.0	3.0
9.1	MMBZ5239B	20	10	3.0
10	MMBZ5240B	20	17	3.0
11	MMBZ5241B	20	22	2.0
12	MMBZ5242B	20	30	1.0
13	MMBZ5243B	9.5	13	0.5
14	MMBZ5244B	9.0	15	0.1
15	MMBZ5245B	8.5	16	0.1
16	MMBZ5246B	7.8	17	0.1
17	MMBZ5247B	7.4	19	0.1
18	MMBZ5248B	7.0	21	0.1
19	MMBZ5249B	6.6	23	0.1
20	MMBZ5250B	6.2	25	0.1
22	MMBZ5251B	5.6	29	0.1
24	MMBZ5252B	5.2	33	0.1
25	MMBZ5253B	5.0	35	0.1
27	MMBZ5254B	4.6	41	0.1
28	MMBZ5255B	4.5	44	0.1
30	MMBZ5256B	4.2	49	0.1
33	MMBZ5257B	3.8	58	0.1

Please refer to Surface Mount section for TO-236 Device Marking.

V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)
3.3				
3.6				
3.9				
4.3				
4.7	BZX84C4V7	5.0	80	3.0
5.1	BZX84C5V1	5.0	60	2.0
5.6	BZX84C5V6	5.0	40	1.0
6.0				
6.2	BZX84C6V2	5.0	10	3.0
6.8	BZX84C6V8	5.0	15	2.0
7.5	BZX84C7V5	5.0	15	1.0
8.2	BZX84C8V2	5.0	15	0.7
8.7				
9.1	BZX84C9V1	5.0	15	0.5
10	BZX84C10	5.0	20	0.2
11	BZX84C11	5.0	20	0.1
12	BZX84C12	5.0	25	0.1
13	BZX84C13	5.0	30	0.1
14				
15	BZX84C15	5.0	30	0.05
16	BZX84C16	5.0	40	0.05
17				
18	BZX84C18	5.0	45	0.05
19				
20	BZX84C20	5.0	55	0.05
22	BZX84C22	5.0	55	0.05
24	BZX84C24	5.0	70	0.05
25				
27	BZX84C27	2.0	80	0.05
28				
30	BZX84C30	2.0	80	0.05
33	BZX84C33	2.0	80	0.05

Please refer to Surface Mount section for TO-236 Device Marking.



## DO-41 1 Watt Zener Diodes

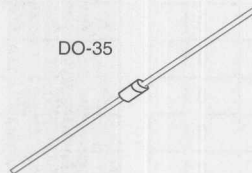
V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)
3.3	1N4728A	76	10	100
3.6	1N4729A	69	10	100
3.9	1N4730A	64	9.0	50
4.3	1N4731A	58	9.0	10
4.7	1N4732A	53	8.0	10
5.1	1N4733A	49	7.0	10
5.6	1N4734A	45	5.0	10
6.2	1N4735A	41	2.0	10
6.8	1N4736A	37	3.5	10
7.5	1N4737A	34	4.0	10
8.2	1N4738A	31	4.5	10
9.1	1N4739A	28	5.0	10
10	1N4740A	25	7.0	10
11	1N4741A	23	8.0	5.0
12	1N4742A	21	9.0	5.0
13	1N4743A	19	10	5.0
15	1N4744A	17	14	5.0
16	1N4745A	15.5	16	5.0
18	1N4746A	14	20	5.0
20	1N4747A	12.5	22	5.0
22	1N4748A	11.5	23	5.0
24	1N4749A	10.5	25	5.0
27	1N4750A	9.5	35	5.0
30	1N4751A	8.5	40	5.0
33	1N4752A	7.5	45	5.0

## DO-41 1.3 Watt Zener Diodes

V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)
3.3	BZX85C3V3	80	20	60
3.6	BZX85C3V6	60	15	30
3.9	BZX85C3V9	60	15	5.0
4.3	BZX85C4V3	50	13	3.0
4.7	BZX85C4V7	45	13	1.0
5.1	BZX85C5V1	45	10	1.0
5.6	BZX85C5V6	45	7.0	1.0
6.2	BZX85C6V2	35	4.0	1.0
6.8	BZX85C6V8	35	3.5	1.0
7.5	BZX85C7V5	35	3.0	1.0
8.2	BZX85C8V2	25	5.0	1.0
9.1	BZX85C9V1	25	5.0	1.0
10	BZX85C10	25	7.0	0.5
11	BZX85C11	20	8.0	0.5
12	BZX85C12	20	9.0	0.5
13	BZX85C13	20	10	0.5
15	BZX85C15	15	15	0.5
16	BZX85C16	15	15	0.5
18	BZX85C18	15	20	0.5
20	BZX85C20	10	24	0.5
22	BZX85C22	10	25	0.5
24	BZX85C24	10	25	0.5
27	BZX85C27	8.0	30	0.5
30	BZX85C30	8.0	30	0.5
33	BZX85C33	8.0	35	0.5

5

DO-35



# Silicon Controlled Rectifiers

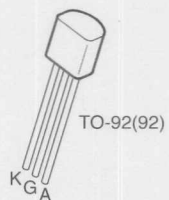
Reverse Blocking Triode Thyristors ..... 6-1



# Reverse Blocking Triode Thyristors

Zeners

$V_{RRM}$ (Volts)	Device	$I_{TSM}$ (60 Hz) (Amp)	$I_{GT}$ (mA)	$V_{GT}$ (Volts)	$P_{GM}$ (Watts)
100	MCR100-3	10	0.2	0.8	0.1
200	MCR100-4	10	0.2	0.8	0.1
400	MCR100-6	10	0.2	0.8	0.1
600	MCR100-8	10	0.2	0.8	0.1



6



# Bipolar Transistors

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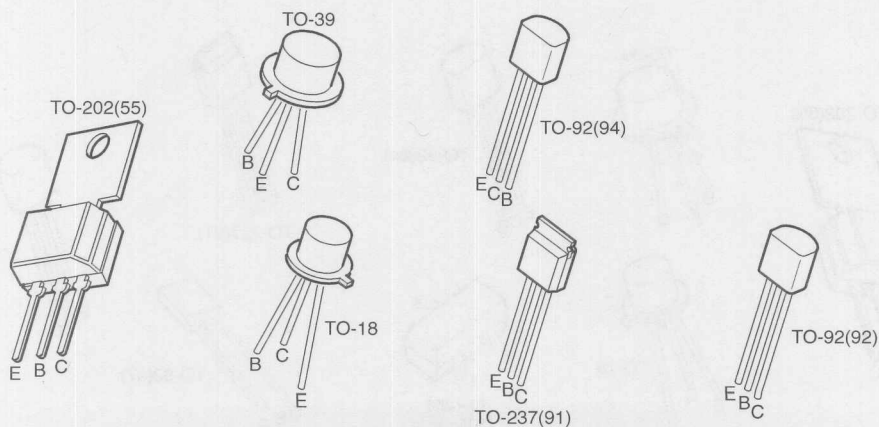


# General Purpose Amplifiers and Switches

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	Max	mA	(MHz) Min	mA			
100	2N6553		1000	80	250	50	75	100		TO-202(55)	1333
	2N6718	2N6730	1000	50	250	250	50	200		TO-237(91)	850
	NSDU07		1000	50		250	50	200		TO-202(55)	2000
80	2N3019		1000	100	300	150	100	50		TO-39	800
	2N3700		1000	100	300	150	80	1.0		TO-18	500
	2N6707		1000	40	250	250	50	200		TO-237(90)	850
	2N6717	2N6729	1000	50	250	250	50	200		TO-237(91)	850
	2N6731	2N6732	1000	100	300	350	50	200		TO-237(91)	850
	BC639	BC640	1500	40	250	150	130 Typ	100		TO-92(94)	625
	D40E7		1000	50		100	200 Typ	20		TO-202(55)	1333
	MPSA06	MPSA56	50	100	—	100	100	10		TO-92(92)	625
	BCP56	BCP53	1500	40	250	150				SOT-223	1500
	NSD105		1500	120	360	100	60	50		TO-202(55)	2000
	TN3019		1000	100	300	150	100	50		TO-237(91)	850
		2N4033	1000	100	300	100	150	50		TO-39	800
		2N6555	1000	80	300	50	75	50		TO-202(55)	1333
		PN4356	500	50	250	10	100	50		TO-92(92)	625
		TN4033	1000	100	300	100	150	50		TO-237(91)	850
75	2N5320	2N5322	2000	30	250	500	50	50		TO-39	800

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.





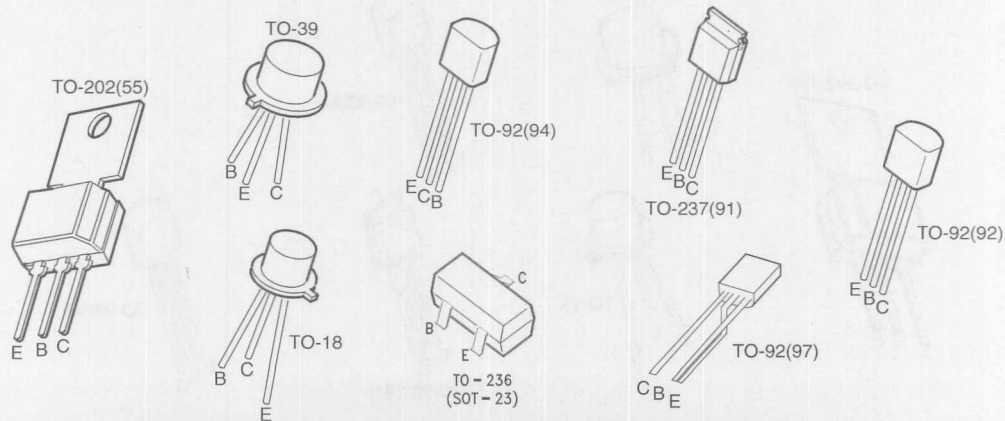
## General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	Max	mA	(MHz) Min	mA			
65	BC546		100	110	450	2.0	300 Typ	10	10	TO-92(97)	625
	BC846		100	110		0.01	300 Typ	10	10	TO-236*	350
						450	2.0				TO-236*
		2N4036	1000	40	140	150	60	50		TO-39	1000
		BC556	100	75	475	2.0	300 Typ	10	10	TO-92(97)	625
		BC856	100	125	475	2.0	300 Typ	10	10	TO-236*	350
	TN4036	1000	40	140	150	60	50		TO-237(91)	850	
60	2N2484		50	100	500	0.01	15	0.5		TO-18	360
	2N3859A		100	100	200	10	90	2.0		TO-92(94)	625
	2N5961		50	150	700	10	100	10	3.0	TO-18	400
	2N6551		1000	80	300	50	75	100		TO-202(55)	1333
	2N6716	2N6728	1000	50	250	250	50	200		TO-237(91)	850
	BC637	BC639	1500	40	250	150	130 Typ	100		TO-92(94)	625
	MPS8098		500	100	300	1.0	150	10		TO-92(92)	625
	MPSA05	MPSA55	500	100		100	100	10		TO-92(92)	625
	NSDU05	NSDU55	1500	50		250	50	200		TO-202(55)	1333
	PN3568		500	40	120	150	60	50		TO-92(92)	625
	TIS98		200	100	300	1.0	200	10		TO-92(97)	625
		2N2904A	600	40	120	150	200	50		TO-39	600
		2N2905A	600	100	300	150	200	50		TO-39	600
		2N2907A	600	100	300	150	200	50		TO-18	400
		2N3962	200	100	300	0.01	40	0.5		TO-18	360

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

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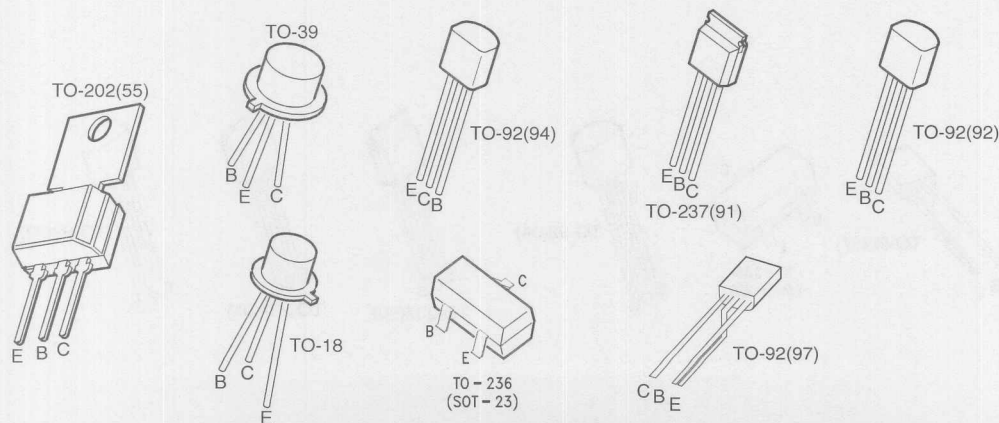


# General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	Max	mA	(MHz) Min	mA			
60		2N4032	1000	100	300	100	150	50		TO-39	800
		2N6554	1500	80	300	50	75	50		TO-202(55)	1333
		PZT2907A	600	100	300	10	200	50		SOT-223	1500
	BCP55	BCP52	1500	40	250	150				SOT-223	1500
		MMBT2907A	600	100	300	150	200	50		TO-236*	350
		PN2907A	600	100	300	150	200	50		TO-92(92)	625
		PN3645	500	100	300	150	200	20		TO-92(92)	625
		PN4249	100	100	300	0.1	40	0.5	3.0	TO-92(92)	625
		PN4250A	100	250	700	0.1	40	0.5	2.0	TO-92(92)	625
		PN4355	500	100	400	10	100	50		TO-92(92)	625
	TN2905A	600	100	300	150	200	50		TO-237(91)	850	
50	2N3416		500	75	225	2.0				TO-92(94)	360
	2N3417		500	180	540	2.0				TO-92(94)	360
	2N956		1000	50	200	150	70	50		TO-18	500
	BC182		100	125	500	2.0	150	10	10	TO-92(97)	625
		2N5323	2000	40	250	500	50	50		TO-39	
		BC212	100	60	400	2.0	200	10	10	TO-92(97)	625
45	2N2270		1000	50	200	150	100	50		TO-39	1000
	2N5962		50	600	1400	10	100	10	3.0	TO-18	400
	2N930		200	100	300	0.01	150	5		TO-18	300
	BC237	BC307	100	120	460	2.0	150	10	10	TO-92(97)	625
	BC337	BC327	1000	100	600	100				TO-92(97)	625
	BC547		100	110	800	2.0	300 Typ	10	10	TO-92(97)	625

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

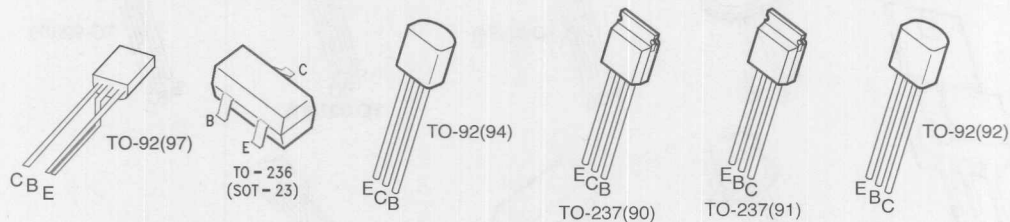


## General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D$ (Amb) (mW) @25°C									
	NPN	PNP		Min	Max	mA	(MHz) Min	mA												
45	BC550		100	200	800	2.0	300 Typ	10	3.0	TO-92(97)	625									
	BC635	BC636	500	40	250	150	130 Typ	100		TO-92(94)	625									
	BC817	BC807	500	100	600	100	200 Typ	100		TO-236*	350									
	BC847			100	110		0.01	300 Typ	10	10	TO-236*	350								
							800	2.0				TO-236*								
	BC850		100	200		0.01	300 Typ	10	3.0	TO-236*	350									
						800	2.0				TO-236*									
	BCX19	BCX17	500	100	600	100	100 Typ	50		TO-236*	350									
	BCX59	BCX79	100	120	630	2.0	125	10	6.0	TO-92(97)	625									
	BCX70		100	120	630	2.0	125	10	6.0	TO-236*	350									
	BD371	BD370	1000	40	400	100	50	200		TO-237(91)	850									
	BD373	BD372	1000	40	400	100	50	200		TO-237(90)	850									
	MMBT100	MMBT200	500	100	450	10	250	20	4.0	TO-236*	350									
	PN100	PN200	500	100	450	10	250	20	4.0	TO-92(92)	625									
	PN100A	PN200A	500	300	600	10	250	20	4.0	TO-92(92)	625									
	PN3642		500	40	120	150	150	50		TO-92(92)	625									
	PN930		30	100	300	0.01	30	0.5			TO-92(92)	625								
											BC557	100	75	260	2.0	300 Typ	10	10	TO-92(97)	625
											BC560	100	75	800	2.0	300 Typ	10	3.0	TO-92(97)	625
											BC857	100	125	800	2.0	300 Typ	10	10	TO-236*	350
BC860											100	125	800	2.0	300 Typ	10	3.0	TO-236*	350	
	BCX71	100	120	630	2.0	125 Typ	20	6.0	TO-236*	350										

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.

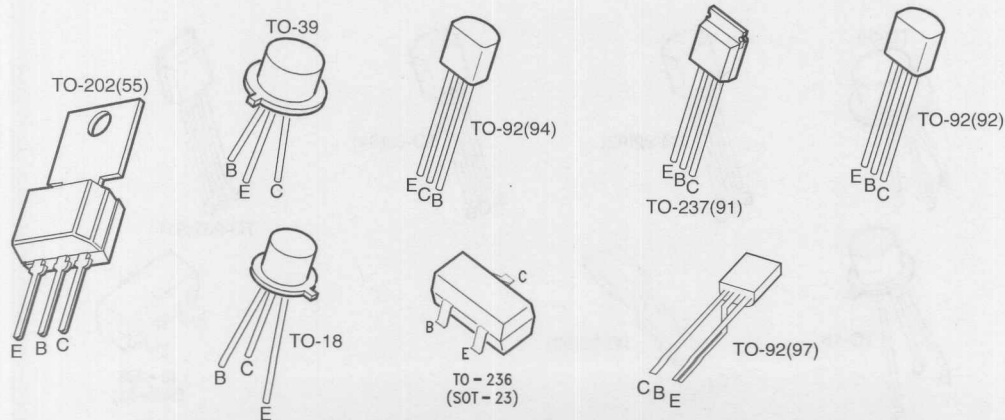
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General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	Max	mA	(MHz) Min	mA			
45	BCX59	BCX79	100	120	630	2.0	125	10	6.0	TO-92(97)	625
		D41D4	1500	50	150	100	150	20		TO-202(55)	1333
		D41D5	1500	120	360	100	150	20		TO-202(55)	1333
		PN3644	500	100	300	150	200	20		TO-92(92)	625
40	2N2219A		500	100	300	150	300	20		TO-39	800
	2N2222A		500	100	300	150	300	20		TO-18	400
	2N3053		700	50	250	150	100	50		TO-39	800
	2N3903		200	50	150	10	250	10	6.0	TO-92(92)	625
	2N3904		200	100	300	10	300	10	5.0	TO-92(92)	625
	2N4400		600	50	150	150	200	20		TO-92(92)	625
	2N4401		600	100	300	150	250	20		TO-92(92)	625
	2N6715	2N6727	1000	50	250	1000	50	50		TO-237(91)	850
	2N697		200	40	120	150				TO-39	600
	MMBT2222A		500	100	300	150	300	20		TO-236*	350
	PZT2222A		600	100	300	10	300	20		SOT-223	1500
	MMBT3904		200	100	300	10	300	10	5.0	TO-236*	350
	PZT3904		200	100	300	10	300	10		SOT-223	1500
	MMBT4400		600	50	150	150	200	20		TO-236*	350
	MMBT4401		600	100	300	150	250	20		TO-236*	350
	MPS6531	MPS6534	600	90	270	100	250 Typ	20	2.0 Typ	TO-92(92)	625
	PN2222A		500	100	300	150	300	20	4.0	TO-92(92)	625

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.

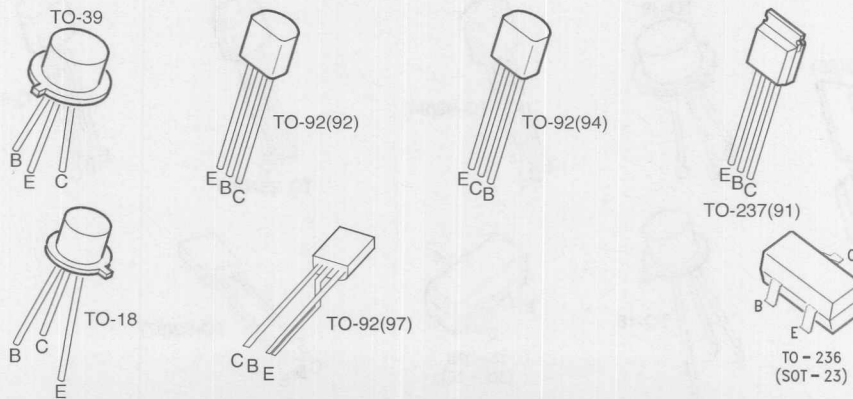


## General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C	
	NPN	PNP		Min	Max	mA	(MHz) Min	mA				
40	PN3567		500	40	120	150	60	50		TO-92(92)	625	
	PN3569		500	100	300	150	60	50		TO-92(92)	625	
	TIS97		200	250	700	0.1	200	10		TO-92(97)	625	
	TN2219A		500	100	300	150	300	20		TO-237(91)	850	
		2N2904		600	40	120	150	200	50		TO-39	600
		2N2905		600	100	300	150	200	50		TO-39	600
		2N2907		600	100	300	150	200	50		TO-18	400
		2N3905		200	50	150	10	200	10	5.0	TO-92(92)	625
		2N3906		200	100	300	10	250	10	4.0	TO-92(92)	625
		2N4037		1000	50	250	150	60	50		TO-39	1000
		2N4402		600	50	150	150	150	20		TO-92(92)	625
		2N4403		600	100	300	150	200	20		TO-92(92)	625
		2N5366		500	100	300	50	300	20		TO-92(94)	360
		MMBT2907		600	100	300	150	200	50		TO-236*	350
		MMBT3906		200	100	300	10	250	10	4.0	TO-236*	350
		PZT3906		200	100	300	10	250	10		SOT-223	1500
		MMBT4402		600	50	150	150	150	20		TO-236*	350
		MMBT4403		600	100	300	150	200	20		TO-236*	350
		PN4121		100	70	200	10	400	10	4.0	TO-92(92)	625
		PN4122		100	150	600	10	450	10	4.0	TO-92(92)	625
	PN4250		100	250	700	0.1	40	0.5	2.0	TO-92(92)	625	
	TIS93		400	100	300	50				TO-92(97)	625	
	TN2905		600	100	300	150	200	50		TO-237(91)	850	

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.

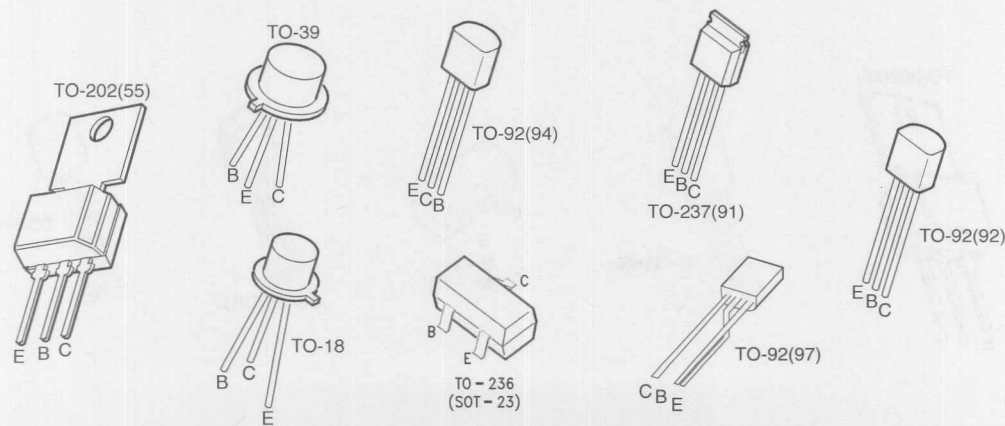
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General Purpose Amplifiers and Switches (continued)

$V_{CE(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	Max	mA	(MHz) Min	mA			
32	BCW33		100	420	800	2.0	300 Typ	10	3.0	TO-236*	350
	BCX58		100	120	630	2.0	125	10	6.0	TO-92(97)	625
		BCX78	100	120	630	2.0	200	10	6.0	TO-92(97)	625
30	2N2222		500	100	300	150	250	20		TO-18	400
	2N3300		500	100	300	150	250	50		TO-39	800
	2N3302		500	100	300	150	250	50		TO-18	360
	2N3704		500	100	300	50	100	50		TO-92(94)	625
	2N4123		200	50	150	2.0	250	10	6.0	TO-92(92)	625
	2N6714	2N6726	1000	50	250	1000	50	50		TO-237(91)	850
	BC183		100	125	900	2.0	150	10	10	TO-92(97)	625
	BC184		100	240	900	2.0	150	4.0	10	TO-92(97)	625
	BC548		100	110	800	2.0	300 Typ	10	10	TO-92(97)	625
	BC549		100	200	800	2.0	300 Typ	10	4.0	TO-92(97)	625
	BC848		100	110		0.01	300 Typ	10	10	TO-236*	350
					800	2.0				TO-236*	
	BC849		100	200		0.01	300 Typ	10	4.0	TO-236*	350
					800	2.0				TO-236*	
	D40D1		1000	50	150	100	200 Typ	20		TO-202(55)	1333
	D40D2		1000	120	360	100	200 Typ	20		TO-202(55)	1333
MMBT2222		500	100	300	150	250	20		TO-236*	350	
MMBT4123		200	50	150	2.0	250	10	6.0	TO-236*	350	

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.



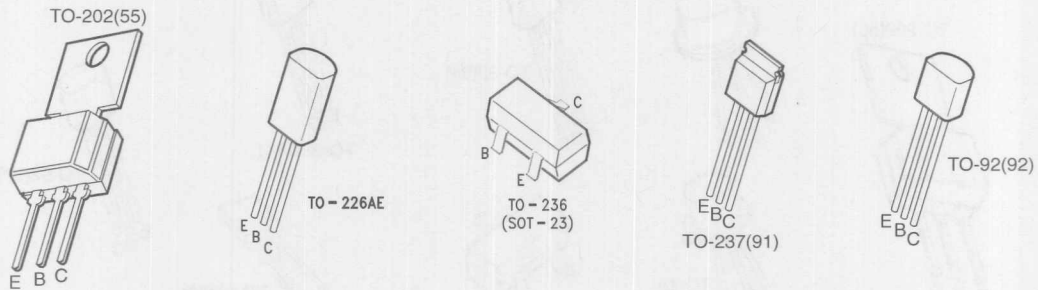
## General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	Max	mA	(MHz) Min	mA			
30	MPSW01A	MPSW51A	1000	50		1000	50	50		TO-226	1000
	NSDU01		1000	60		100	50	50		TO-202(55)	1333
	PN2222		500	100	300	150	250	20		TO-92(92)	625
	PN3566		200	150	600	10	40	30		TO-92(92)	625
	PN3643		500	100	300	150	250	50		TO-92(92)	625
	PN4141		500	100	300	150	250	20		TO-92(92)	625
	TN2219		500	100	300	150	250	20		TO-237(91)	850
		2N4125	200	50	150	2.0	200	10	5.0	TO-92(92)	625
		BC213	100	80	600	2.0	200	10	10	TO-92(97)	625
		BC214	100	140	600	2.0	200	10	2.0	TO-92(97)	625
		BC558	100	75	800	2.0	300 Typ	10	10	TO-92(97)	625
		BC559	100	75	800	2.0	300 Typ	10	4.0	TO-92(97)	625
		BC858	100	125	800	2.0	300 Typ	10	10	TO-236*	350
		BC859	100	125	800	2.0	300 Typ	10	4.0	TO-236*	350
		MMBT4125	200	50	150	2.0	200	10	5.0	TO-236*	350
		PN2907	500	100	300	150	200	20		TO-92(92)	625
		PN4143	500	100	300	150	200	20		TO-92(92)	625
		PN4917	100	150	300	10	450	10	4	TO-92(92)	625
		PN5138	50	50	800	0.1	30	0.5		TO-92(92)	625

\* TO-236AB is standard for all devices.

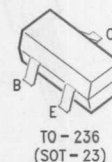
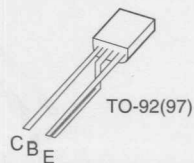
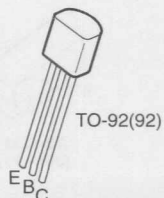
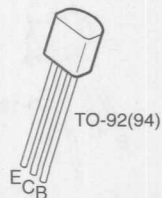
Please refer to Surface Mount section for TO-236 Device Marking.

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$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C	
	NPN	PNP		Min	Max	mA	(MHz) Min	mA				
25	2N3391A		100	250	500	2.0	120 Typ.	2.0	5.0	TO-92(94)	360	
	2N3392		100	150	300	2.0	120 Typ.	2.0		TO-92(94)	360	
	2N3393		100	90	180	2.0	120 Typ.	2.0		TO-92(94)	360	
	2N3415		500	180	540	2.0				TO-92(94)	360	
	2N4124		200	120	360	2.0	300	10	5.0	TO-92(92)	625	
	2N5172		100	100	500	10	120	5.0		TO-92(94)	360	
	BC238	BC308	100	125	900	2.0	150	10	10	TO-92(97)	625	
	BC338	BC328	800	100	600	100				TO-92(94)	625	
	BC818	BC808	500	100	600	100	150 Typ	100		TO-236*	350	
		BCX18	500	100	600	100	200 Typ	50		TO-236*	350	
		BCX20	500	100	600	100	130 Typ	50		TO-236*	350	
		MMBT4124		200	120	360	2.0	300	10	5.0	TO-236*	350
		MPS6514		100	150	300	2.0	450 Typ	10	2.0 Typ	TO-92(92)	625
		MPS6515	MPS6518	100	250	500	2.0	450 Typ	10	2.0 Typ	TO-92(92)	625
		MPS6521	MPS6523	100	200	600	2.0	450 Typ	10	2.0 Typ	TO-92(92)	625
		PN3565		50	150	600	1.0	40	1.0		TO-92(92)	625
			2N3702	200	60	300	50	100	50		TO-92(94)	625
			2N4126	200	120	360	2.0	250	10	4.0	TO-92(92)	625
			MMBT4126	200	120	360	2.0	250	10	4.0	TO-236*	350
			MPS6562	500	50	200	500	60	10		TO-92(92)	625
		PN3638	500	30		50	100	50		TO-92(92)	625	
		PN3638A	500	100		50	150	50		TO-92(92)	625	
20	BC239	BC309	100	180	800	2.0	150	10	10	TO-92(94)	625	
	BC368	BC369	1000	85	375	500				TO-92(97)	625	

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.





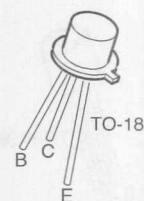
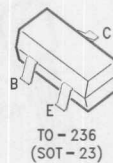
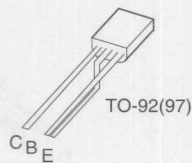
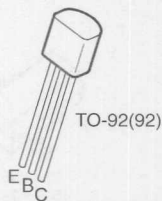
# Low Noise Amplifiers

$V_{CE0(sust)}$ (Volts) Min	Device		$h_{FE} @ I_C$			NF (dB) Max	$f_T$ (MHz) Min	Package	Notes
	NPN	PNP	Min	Max	mA				
65	BC546		110	450	2	10	300 Typ	TO-92(97)	1,2C
	BC846		110		0.01	10	300 Typ	TO-236*	1,2C
		BC556	75	475	2	10	300 Typ	TO-92(97)	1,2C
		BC856	125	475	2	10	300 Typ	TO-236*	1,2C
60	2N2484		100	500	0.01	3	60	TO-18	2F
	2N3117		250	500	0.01	1	60	TO-18	2L
	2N5961		150	700	10	3	60	TO-92(92)	2M
		2N3962	100	300	0.01	3	50	TO-18	2N
		PN4249	100	300	0.1	3	6	TO-92(92)	2A
		PN4250A	250	700	0.1	2	6	TO-92(92)	2A
50	2N5210		200	600	0.1	3	30	TO-92(92)	2J
	BC182		125	500	2	10	150	TO-92(97)	1,2C
		2N5086	150	500	0.1	3	40	TO-92(92)	2H
		2N5087	250	800	0.1	2	40	TO-92(92)	2H
		BC212	60	400	2	10	200	TO-92(97)	1,2C
		MMBT5086	150	500	0.1	3	40	TO-236*	2H
		MMBT5087	250	800	0.1	2	40	TO-236*	2H
45	2N5962		600	1400	10	3	60	TO-92(92)	2M
	2N930		100	300	0.01	3	30	TO-18	2F
	BC237		125	500	2	10	150	TO-92(97)	1,2C
	BC547		110	800	2	10	300 Typ	TO-92(97)	1,2C
	BC550		200	800	2	3	300 Typ	TO-92(97)	1,2D
	BC847		110		0.01	10	300 Typ	TO-236*	1,2C
				800	2				

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

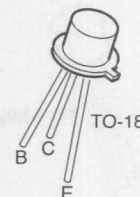
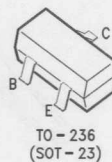
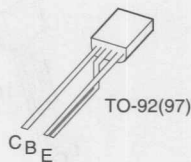
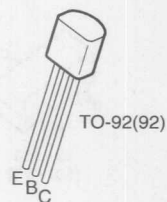
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# Low Noise Amplifiers (continued)

$V_{CE0(sust)}$ (Volts) Min	Device		$h_{FE} @ I_C$			NF (dB) Max	$f_T$ (MHz) Min	Package	Notes
	NPN	PNP	Min	Max	mA				
45	BC850		110		0.01	4	300 Typ	TO-236*	1,2C
				800	2	3			1,2D
	BCX59	BCX79	120	630	2	6	125	TO-92(97)	1,2C
	MMBT100	MMBT200	100	450	10	4	250	TO-236*	2B
	MPSA18		500	1500	10	1.5	100	TO-92(92)	2E
	PN100	PN200	100	450	10	4	250	TO-92(92)	2B
	PN100A	PN200A	300	600	10	4	250	TO-92(92)	2B
	PN930		100	300	0.01	3	30	TO-92(92)	2F
		BC307	125	500	2	10	300 Typ	TO-92(97)	1,2C
		BC557	75	260	2	10	300 Typ	TO-92(97)	1,2C
		BC560	75	800	2	3	300 Typ	TO-92(97)	1,2D
		BC857	125	800	2	10	300 Typ	TO-236*	1,2C
		BC860	125	800	2	4	300 Typ	TO-236*	1,2C
	BCX71	120	630	2	6	125	TO-236*	1,2C	
40	2N3904		100	300	10	5	300	TO-92(92)	2G
	MMBT2222A		100	300	150	4	300	TO-236*	2B
	MMBT3904		100	300	10	5	300	TO-236*	2G
	PN2222A		100	300	150	4	300	TO-92(92)	2B
	TIS97		250	700	0.1	2	200	TO-92(97)	2E
		2N3906	100	300	10	4	250	TO-92(92)	2G
		MMBT3906	100	300	10	4	250	TO-236*	2G
		PN4250	250	700	0.1	2	50	TO-92(92)	2A
32	BCW33		420	800	2	10	300 Typ	TO-236*	2C
	BCX58	BCX78	120	630	2	6	125	TO-92(97)	1,2C
30	2N4123		50	150	2	6	250	TO-92(92)	2G
	2N5088		300	900	0.1	3	50	TO-92(92)	2E
	BC183		125	900	2	10	150	TO-92(97)	1,2C

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.



## Low Noise Amplifiers (continued)

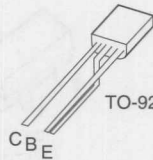
$V_{CE0(sust)}$ (Volts) Min	Device		$h_{FE} @ I_C$			NF (dB) Max	$f_T$ (MHz) Min	Package	Notes	
	NPN	PNP	Min	Max	mA					
30	BC184		240	900	2	4	150	TO-92(97)	1,2D	
	BC548		110	800	2	10	300 Typ	TO-92(97)	1,2C,2D	
	BC549		200	800	2	4	300 Typ	TO-92(97)	1,2C	
	BC848			110		0.01	10	300 Typ	TO-236*	1,2C
					800	2				
	BC849			110		0.01	4	300 Typ	TO-236*	1,2C,2D
					800	2				
	MMBT5088			300	900	0.1	3	50	TO-236*	2E
		2N4125		50	150	2	5	250	TO-92(92)	2G
		BC213		80	600	2	10	200	TO-92(97)	1,2C
		BC214		140	600	2	2	200	TO-92(97)	1,2D
		BC558		75	800	2	10	300 Typ	TO-92(97)	1,2C
		BC559		75	800	2	4	300 Typ	TO-92(97)	1,2C
	BC858		125	800	2	10	300 Typ	TO-236*	1,2C	
	BC859		125	800	2	4	300 Typ	TO-236*	1,2C,2D	
25	2N3391A		250	500	2	5	300 Typ	TO-92(94)	2K	
	2N4124		120	360	2	5	350	TO-92(92)	2G	
	2N5089		400	1200	0.1	2	50	TO-92(92)	2E	
	BC238		125	900	2	10	150	TO-92(97)	1,2C	
	MMBT5089		400	1200	0.1	2	50	TO-236*	2E	
	MPS6521	MPS6523		300	600	2	3	300 Typ	TO-92(92)	2F
		2N4126		120	360	2	4	250	TO-92(92)	2G
		BC308		125	900	2	10	300 Typ	TO-92(97)	1,2C

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.

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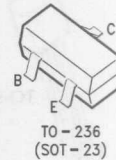
TO-92(92)



TO-92(97)



TO-92(94)



TO-236  
(SOT-23)

## Low Noise Amplifiers (continued)

$V_{CE0(sust)}$ (Volts) Min	Device		$h_{FE} @ I_C$			NF (dB) Max	$f_T$ (MHz) Min	Package	Notes
	NPN	PNP	Min	Max	mA				
20	BC239		240	900	2	4	150	TO-92(97)	1,2C,2D
		BC309	125	900	2	4	300 Typ	TO-92(97)	1,2C,2D

1 Suffixes: Many suffix devices, such as B, C, -9, G, etc. are available, subject to minimum order criteria.

2A — NF: Noise Figure @  $R_S = 1 \text{ k}\Omega$ ,  $I_C = 20 \text{ }\mu\text{A}$  to  $250 \text{ }\mu\text{A}$ ,

$f = 1 \text{ kHz}$ ; @  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 20 \text{ }\mu\text{A}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2B — NF: Noise Figure @  $R_S = 2 \text{ k}\Omega$ ,  $I_C = 100 \text{ }\mu\text{A}$ ,  $f = 1 \text{ kHz}$

2C — NF: Noise Figure @  $R_S = 2 \text{ k}\Omega$ ,  $I_C = 200 \text{ }\mu\text{A}$ ,  $f = 1 \text{ kHz}$

2D — NF: Noise Figure @  $R_S = 2 \text{ k}\Omega$ ,  $I_C = 200 \text{ }\mu\text{A}$ ,  $f = 3 \text{ Hz}$  to  $15 \text{ kHz}$

2E — NF: Noise Figure @  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 100 \text{ }\mu\text{A}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2F — NF: Noise Figure @  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 10 \text{ }\mu\text{A}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2G — NF: Noise Figure @  $R_S = 1 \text{ k}\Omega$ ,  $I_C = 100 \text{ }\mu\text{A}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2H — NF: Noise Figure @  $R_S = 1 \text{ k}\Omega$ ,  $I_C = 100 \text{ }\mu\text{A}$ ,  $f = 1 \text{ kHz}$

@  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 20 \text{ mA}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2J — NF: Noise Figure @  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 20 \text{ }\mu\text{A}$ ,  $f = 1 \text{ kHz}$

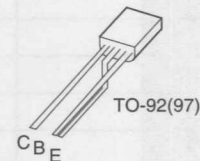
@  $R_S = 22 \text{ k}\Omega$ ,  $I_C = 20 \text{ }\mu\text{A}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2K — NF: Noise Figure @  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 500 \text{ }\mu\text{A}$ ,  $f = 10 \text{ Hz}$  to  $15 \text{ kHz}$

2L — NF: Noise Figure @  $R_S = 50 \text{ k}\Omega$ ,  $I_C = 5.0 \text{ }\mu\text{A}$ ,  $f = 1.0 \text{ kHz}$  and  $10 \text{ kHz}$

2M — NF: Noise Figure @  $R_S = 10 \text{ k}\Omega$ ,  $I_C = 10 \text{ }\mu\text{A}$ ,  $f = 1.0 \text{ kHz}$

2N — NF: Noise Figure @  $R_S = 1 \text{ k}\Omega$ ,  $I_C = 20 \text{ }\mu\text{A}$



\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

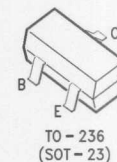
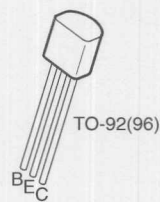
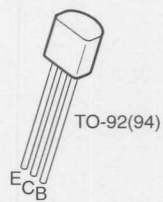
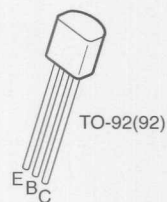
# RF Amplifiers

Devices		$V_{CE0(Sust)}$ (Volts) Min	$I_C$ (mA) Max	$h_{FE} @ I_C V_{CE}$			$f_T$ (MHz) Min	$C_{ob}$ pF Max	NF (dB) @ f		Package
NPN	PNP			Min	mA	V			Max	MHz	
2N3663		12	50	20	8.0	10	700	1.70	6.5	60	TO-92(94)
2N5179		12	50	25	3.0	1.0	900	1.0	4.5	200	TO-72
MMBT5179		12	50	25	3.0	1.0	900	1.0	4.5	200	TO-236*
MPS5179		12	50	25	3.0	1.0	900	1.0	4.5	200	TO-92(92)
2N5770		15	50	20	3.0	1.0	900	1.1	6.0	60	TO-92(92)
2N918		15	50	20	3.0	1.0	600	1.7	6.0	60	TO-72
MMBT918		15	50	20	3.0	1.0	600	1.7	6.0	60	TO-236*
PN918		15	50	20	3.0	1.0	600	1.7	6.0	60	TO-92(92)
BF199		25	100	40	7.0	10	750 Typ.	0.35 Typ.	2.5 Typ.	35	TO-92(98)
MMBTH10		25	50	60	4.0	10	650	0.7			TO-236*
MPSH10		25	50	60	4.0	10	650	0.7			TO-92(96)
MMBTH11		25	50	60	4.0	10	660	0.9			TO-236*
MPSH11		25	50	60	4.0	10	660	0.9			TO-92(96)
MMBTH24		30	100	30	8.0	10	400	0.36			TO-236*
MPSH24		30	100	30	8.0	10	400	0.36			TO-92(96)
MMBTH34		45	100	40	7.0	15	500	0.32			TO-236*
MPSH34		45	100	40	7.0	15	500	0.32			TO-92(96)
PN3563		12	50	20	8.0	10	600	1.7	6 Typ.	60	TO-92(92)
	MMBTH81	20	50	60	5.0	10	600	0.85			TO-236*
	MPSH81	20	50	60	5.0	10	600	0.85			TO-92(96)

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

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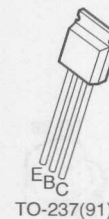
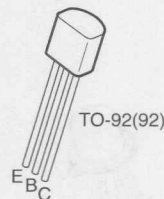
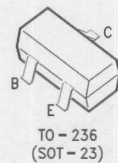
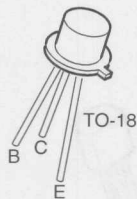
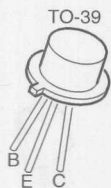


# High Speed Saturated Switching Transistors

$V_{CE(sust)}$ (Volts) Min	Devices		$t_{on}$ (ns) Max	$t_{off} @ I_C$		$h_{FE} @ I_C$		$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		(ns) Max	mA	Min	mA	(Volts) Max	mA	mA			
60		2N2904A	45	100	150	40	150	0.4	150	15	200	TO-39	600
		2N2905A	45	100	150	100	150	0.4	150	15	200	TO-39	600
		2N2907A	45	100	150	100	150	0.4	150	15	200	TO-18	400
		MMBT2907A	45	100	150	100	150	0.4	150	15	200	TO-236*	350
		PN2907A	45	100	150	100	150	0.4	150	15	200	TO-92(92)	625
		PN3645	40	100	300	100	150	0.25	50	2.5	200	TO-92(92)	625
		TN2905A	45	100	150	100	150	0.4	150	15	200	TO-237(91)	850
50	2N3725		35	60	500	60	100	0.95	1A	100	300	TO-39	800
	TN3725		35	60	500	60	100	0.95	1A	100	300	TO-237(91)	850
45		PN3644	40	100	300	100	150	0.25	50	2.5	200	TO-92(92)	625
40	2N2219A		35	285	150	100	150	0.3	150	15	300	TO-39	800
	2N2222A		35	285	150	100	150	0.3	150	15	300	TO-18	400
	2N3903		70	225	10	50	10	0.2	10	1.0	250	TO-92(92)	625
	2N3904		70	250	10	100	10	0.2	10	1.0	300	TO-92(92)	625
	2N4400		35	255	150	50	150	0.4	150	15	200	TO-92(92)	625
	2N4401		35	255	150	100	300	0.4	150	15	250	TO-92(92)	625
	BSR17A		70	250	10	100	10	0.2	10	1.0	300	TO-236*	350
	MMBT2222A		35	285	150	100	150	0.3	150	15	300	TO-236*	350
	MMBT3904		70	250	10	100	10	0.2	10	1.0	300	TO-236*	350
	MMBT4401		35	255	150	100	300	0.4	150	15	250	TO-236*	350
	PN2222A		35	285	150	100	150	0.3	150	15	300	TO-92(92)	625

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.



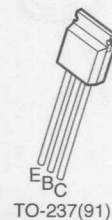
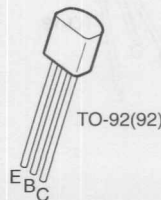
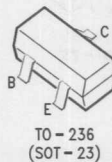
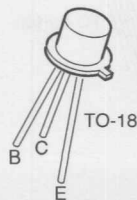
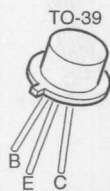
## High Speed Saturated Switching Transistors (continued)

$V_{CE(sust)}$ (Volts) Min	Devices		$t_{on}$ (ns) Max	$t_{off} @ I_C$		$h_{FE} @ I_C$		$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		(ns) Max	(mA)	Min	(mA)	(Volts) Max	(mA)	(mA)			
40	TN2219A		35	285	150	100	150	0.3	150	15	300	TO-237(91)	850
		2N3467	40	90	500	40	500	0.5	500	50	175	TO-39	1000
		2N3905	70	260	10	50	10	0.25	10	1.0	200	TO-92(92)	625
		2N3906	70	300	10	100	10	0.25	10	1.0	250	TO-92(92)	625
		2N4402	35	255	150	50	150	0.4	150	15	150	TO-92(92)	625
		2N4403	35	255	150	100	150	0.4	150	15	200	TO-92(92)	625
		MMBT3906	70	300	10	100	10	0.25	10	1.0	250	TO-236*	350
		MMBT4403	35	255	150	100	150	0.4	150	15	200	TO-236*	350
		PN2907	45	100	150	100	150	0.4	150	15	200	TO-92(92)	625
		PN4121	40	150	50	70	10	0.3	50	5.0	400	TO-92(92)	625
		PN4122	40	150	50	150	10	0.3	50	5.0	450	TO-92(92)	625
		TN2905	45	100	150	100	150	0.4	150	15	200	TO-237(91)	850
30	2N3724		35	60	500	60	100	0.75	1A	100	300	TO-39	800
		PN4917	40	150	50	150	10	0.3	50	5.0	450	TO-92(92)	625
25		PN3638	75	170	300	30	50	0.25	50	2.5	100	TO-92(92)	625
		PN3638A	75	170	300	100	50	0.25	50	2.5	150	TO-92(92)	625
15	2N2369		12	18	10	40	10	0.25	10	1.0	500	TO-18	360
	2N2369A		12	18	10	40	10	0.2	10	1.0	500	TO-18	360
	2N708		40	70	10	30	10	0.4	10	1.0	300	TO-18	360
	MMBT2369A		12	18	10	40	10	0.2	10	1.0	500	TO-236*	350

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

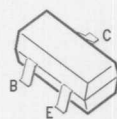
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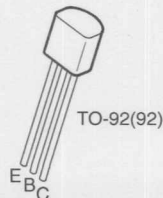
# High Speed Saturated Switching Transistors (continued)

$V_{CE(sust)}$ (Volts) Min	Devices		$t_{on}$ (ns) Max	$t_{off} @ I_C$		$h_{FE} @ I_C$		$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (mW) @25°C	
	NPN	PNP		(ns) Max	mA	Min	mA	(Volts) Max	mA	mA				
15	MMBT3646		18	28	300	30	30	0.2	30	3.0	350	TO-236*	350	
	PN2369		12	18	10	40	10	0.25	10	1.0	500	TO-92(92)	625	
	PN2369A		12	18	10	40	10	0.2	10	1.0	500	TO-92(92)	625	
	PN3646		18	28	300	30	30	0.2	30	3.0	350	TO-92(92)	625	
	PN4275		12	12	10	35	10	0.2	10	1.0	400	TO-92(92)	625	
		2N4209		15	20	10	50	10	0.18	10	1.0	850	TO-18	300
		2N5771		15	20	10	50	10	0.18	10	1.0	850	TO-92(92)	625
		MMBT4209		15	20	10	50	10	0.18	10	1.0	850	TO-236*	350
		MMBT5771		15	20	10	50	10	0.18	10	1.0	850	TO-236*	350
	12		2N4208	15	20	10	30	10	0.15	10	1.0	700	TO-18	300
		MMBT3640	25	35	50	30	10	0.2	10	1.0	500	TO-236*	350	
		MMBT4258	15	20	10	30	50	0.15	10	1.0	700	TO-236*	350	
		PN3640	25	35	50	30	10	0.2	10	1.0	500	TO-92(92)	625	
		PN4258	15	20	10	30	50	0.15	10	1.0	700	TO-92(92)	625	
		BSV52		12	18	10	40	10	0.25	10	1.0	500	TO-236*	350
10	PN5134		18	18	10	20	10	0.25	10	1.0	250	TO-92(92)	625	

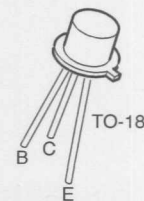
\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.



TO-236  
(SOT-23)



TO-92(92)



TO-18



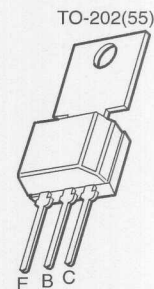
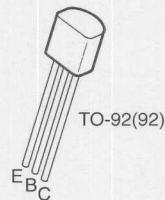
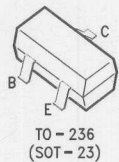
# High Voltage Amplifiers

$V_{CE0(sust)}$ (Volts) Min	Device		$I_C$ (mA) Max	$h_{FE}@ I_C$		$V_{CE(sat)} I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (mW) @25°C
	NPN	PNP		Min	(mA)	(Volts) Min	(mA)	(mA)			
300	2N6719		500	40	30				30	TO-237(91)	850
	MMBTA42		500	40	30	0.5	20	2.0	50	TO-236*	350
	MPSA42		500	40	30	0.5	20	2.0	50	TO-92(92)	625
	PZTA42		500	40	30	0.5	20	2.0	50	SOT-223	1500
		PZTA92	500	25	30	0.5	20	2.0	50	SOT-223	1500
		MMBTA92	500	25	30	0.5	20	2.0	50	TO-236*	350
		MPSA92	500	25	30	0.5	20	2.0	50	TO-92(92)	625
250	D40N2		500	60	20				50	TO-202(55)	2000
200	MPSA43		500	40	30	0.5	20	2.0	50	TO-92(92)	625
160	2N5551		600	80	10	0.2	50	5.0	100	TO-92(92)	350
	MMBT5551		600	80	10	0.2	50	5.0	100	TO-236*	350
150		2N5401	600	60	10	0.5	50	5.0	100	TO-92(92)	625
		MMBT5401	600	60	10	0.5	50	5.0	100	TO-236*	350
140	2N5550		600	60	10	0.25	50	5.0	100	TO-92(92)	350
	MMBT5550		600	60	10	0.25	50	5.0	100	TO-236*	350
120		2N5400	600	40	10	0.5	50	5.0	100	TO-92(92)	625
100		MPSL51	600	40	50	0.3	50	5.0	60	TO-92(92)	625
		2N5830	200	80	10	0.25	50	5	100	TO-92(92)	625

\* TO-236AB is standard for all devices.

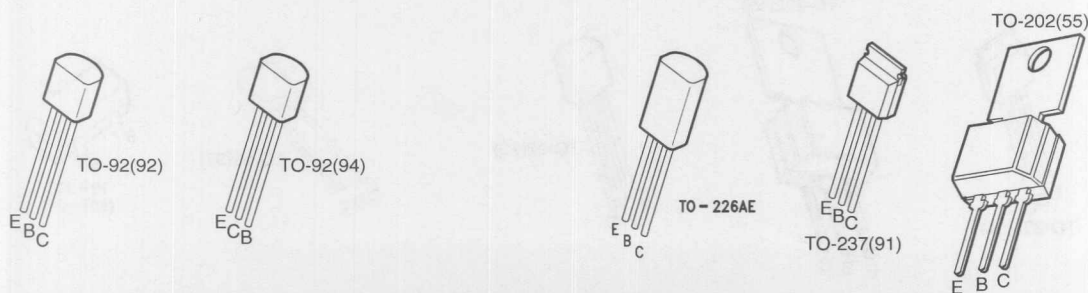
Please refer to Surface Mount section for TO-236 Device Marking.

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# Darlington Transistors

$V_{CE(sust)}$ (Volts) Min	Devices		$I_C$ Max (Amps)	$h_{FE} @ I_C$			$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D$ (Amb) (Watts) @25°C	
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	$\mu A$				
100	2N7051		1	20,000		100	1.4	200	200	200	TO-92(94)	0.6	
				1,000	20,000	1A							
	PZT7052		500	10,000		100	1.5	100	100	100	SOT-223	1.5	
				1,000	20,000	1A							
	2N7053		1	20,000		100	1.5	100	100	200	TO-226	1	
				1,000	20,000	1A							
50	2N6725		1	25,000		200	1.0	200	2mA	100	TO-237(91)	0.85	
				15,000		500	1.5	1A	2mA	100		0.85	
				4,000	40,000	1A							
	D40C7		1	10,000	60,000	200	1.5	500	500	TO-202(55)	1.3		
	D40K2		1	10,000		200	1.5	1.5A	3mA		TO-202(55)	1.3	
				1,000		1.5A							
	D40K4		1	10,000		200	1.5	1A	2mA		TO-202(55)	1.3	
				1,000		1.5A							
	40	2N5307		0.3	2,000	20,000	2	1.4	200	200	60	TO-92(94)	0.4
					6,000		100						
2N5308			0.3	7,000	70,000	2	1.4	200	200	60	TO-92(94)	0.4	
				20,000		100							
2N6427			0.5	10,000	100,000	10	1.2	50	500	130	TO-92(92)	0.625	
				20,000	200,000	100	1.5	500	500				
				14,000	140,000	500							
2N6548			2	25,000	150,000	200	1.5	1A	2mA		TO-202(55)	1.3	
				15,000		500	2.0	2A	4mA				
				5,000		1A							

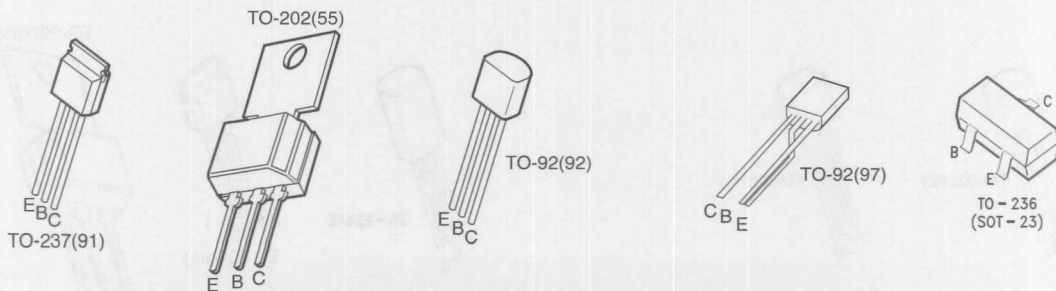


## Darlington Transistors (continued)

$V_{CE(sust)}$ (Volts) Min	Devices		$I_C$ Max (Amps)	$h_{FE} @ I_C$			$V_{CE(sat)} @ I_C \text{ \& } I_B$			$f_T$ (MHz) Min	Package	$P_D$ (Amb) (Watts) @25°C
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	$\mu A$			
40	2N6549		2	15,000	150,000	200	1.5	1A	2mA		TO-202(55)	1.3
				10,000		500	2	2A	4mA			
				3,000		1A						
	2N6724		1	25,000		200	1.0	200	2mA	100	TO-237(91)	0.85
				15,000		500	1.5	1A				
				4,000	40,000	1A						
	D40C4		1	10,000	60,000	200	1.5	500	500		TO-202(55)	1.3
	D40C5		1	40,000		200	1.5	500	500		TO-202(55)	1.3
	NSD154		1	20,000		10	1.5	100	100		TO-202(55)	1.3
				5,000		100						
NSDU45		1	25,000	150,000	200	1.0	200	2mA	100	TO-202(55)	1.3	
			15,000		500	1.5	1A	2mA				
			4,000		1A							
30	BC517	BC516	1	30,000		20	1.0	100	100		TO-92(97)	0.6
	BCV27	BCV26	0.3	4,000		1	1.0	100	100		TO-236*	0.35
				10,000		10						
				20,000		100						
	D40C1		1	10,000	60,000	200	1.5	500	500		TO-202(55)	1.3
	D40K1		1	10,000		200	1.5	1.5A	3mA		TO-202(55)	1.3
				1,000		1.5A						
	MMBTA13		0.3	5,000		10	1.5	100	100	125	TO-236*	0.35
				10,000		100						
	MMBTA14		0.3	10,000		10	1.5	100	100	125	TO-236*	0.35
20,000					100							

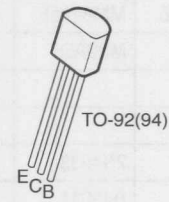
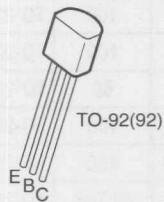
\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.



## Darlington Transistors (continued)

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ Max (Amps)	$h_{FE} @ I_C$			$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D$ (Amb) (Watts) @25°C
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	$\mu A$			
30	PZTA14	PZTA64	0.3	10,000		10	1.5	100	100	125	SOT-223	1.5
				20,000		100						
	MPSA13	MPSA63	0.5	5,000		10	1.5	100	100	125	TO-92(92)	0.625
				10,000		100						
	MPSA14		0.5	10,000		10	1.5	100	100	125	TO-92(92)	0.625
				20,000		100						
	MPSA65	0.5	50,000		10	1.5	100	100	100	TO-92(92)	0.625	
			20,000		100							
25	2N5306		0.2	7,000	70,000	2	1.4	200	200	60	TO-92(94)	0.4
				20,000		100						
20	MPSA12		0.5	20,000		10	1.0	10	10		TO-92(92)	0.625

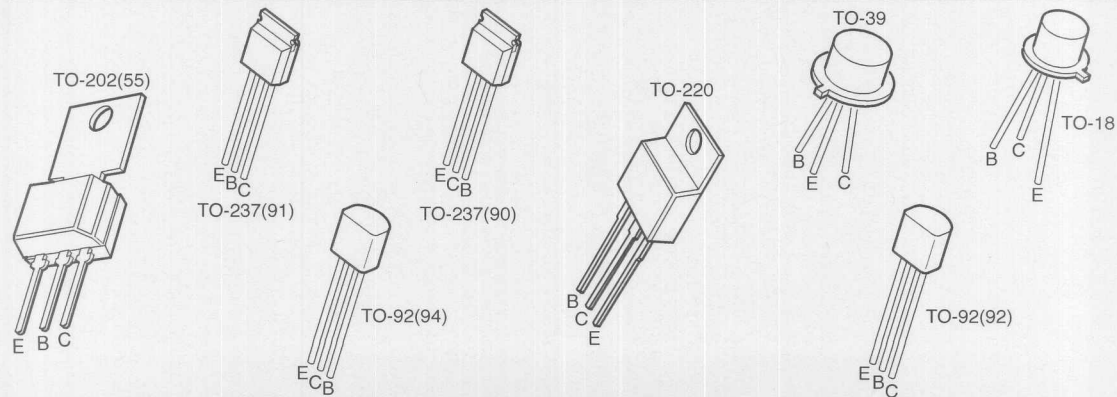


# High Current Drivers

$V_{CE0(sust)}$ (Volts) Min	Devices		$I_C$ (Amps) Max	$h_{FE} @ I_C$			$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (Watts) @25°C
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	mA			
100	2N6553		1.0	80	250	50	1.0	1A	100	75	TO-202(55)	1.33
	2N6718	2N6730	1.0	50	250	250	0.35	250	25	50	TO-237(91)	0.85
	NSDU07		1.0	50		250	0.35	250	25	50	TO-202(55)	2.0
80	2N3019		1.0	100	300	150	0.5	500	50	100	TO-39	0.8
	2N3700		1.0	100	300	150	0.5	500	50	80	TO-18	0.5
	2N6707		1.0	40	250	250	1.0	1A	100	50	TO-237(90)	0.85
	2N6717	2N6729	1.0	50	250	250	0.35	250	25	50	TO-237(91)	0.85
	2N6731	2N6732	1.0	100	300	350	0.35	350	35	50	TO-237(91)	0.85
	BC639	BC640	1.5	40	250	150	0.50	500	50	130 Typ.	TO-92(94)	0.625
	D40E7		1.0	50		100	1.0	1A	100	200 Typ.	TO-202(55)	1.33
	D44C11		3.0	40	120	200	0.5	1A	0.1	50 Typ.	TO-220	1.67
	MMBTA06	MMBTA56	0.5	50		100	0.25	100	10	100	TO-236*	0.35
	MPSA06	MPSA56	0.5	50		100	0.25	100	10	100	TO-92(92)	0.625
	NSD105		1.5	120	360	100	0.5	500	50	60	TO-202(55)	2.0
	TN3019		1.0	100	300	150	0.5	500	50	100	TO-237(91)	0.85
		2N4033	1.0	100	300	100	1.0	1A	100	150	TO-39	0.8
		D45C11	4.0	40	120	200	0.5	1A	50	40 Typ.	TO-220	1.67
		PN4356	0.5	50	250	10	0.5	500	50	100	TO-92(92)	0.625
		2N6555	1.5	80	300	50	1.0	1A	100	75	TO-202(55)	1.33
	TN4033	1.0	100	300	100	0.5	500	50	150	TO-237(91)	0.85	
65		2N4036	1.0	40	140	150	0.65	150	15	60	TO-39	1.0
		TN4036	1.0	40	140	150	0.65	150	15	60	TO-237	0.85

\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.

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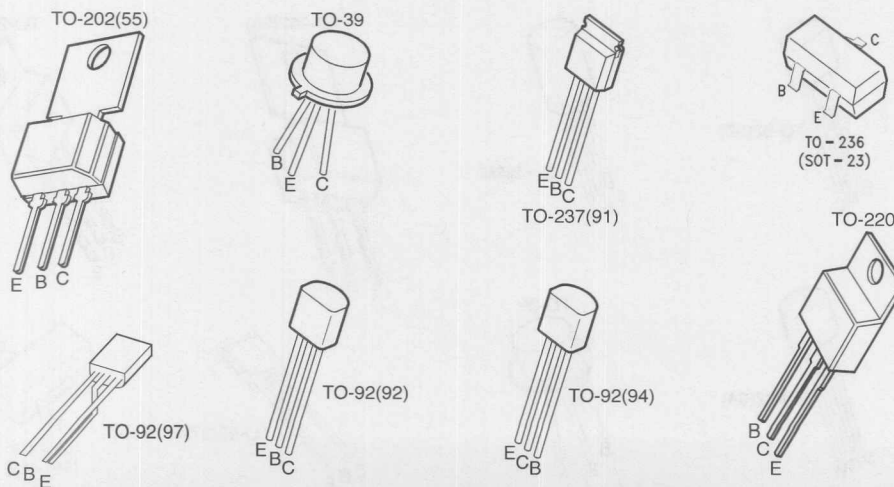


# High Current Drivers (continued)

$V_{CE(sust)}$ (Volts) Min	Devices		$I_C$ (Amps) Max	$h_{FE} @ I_C$			$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (Watts) @25°C
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	mA			
60	2N6551		1.0	80	300	50	1.0	1A	100	75	TO-202(55)	1.33
	2N6716	2N6728	1.0	50	250	250	0.35	250	25	50	TO-237(91)	0.85
	BC637	BC639	1.5	40	250	150	0.50	500	50	130 Typ.	TO-92(94)	0.625
	MMBTA05	MMBTA55	0.5	50		100	0.25	100	10	100	TO-236*	0.35
	MPS8098		0.5	100	300	1	0.3	100	10	150	TO-92(92)	0.625
	MPSA05	MPSA55	0.5	50		100	0.25	100	10	100	TO-92(92)	0.625
	NSDU05	NSDU55	1.5	50		250	0.35	250	25	50	TO-202(55)	1.33
		2N4032	1.0	100	300	100	0.5	500	50	150	TO-39	0.8
		2N6554	1.5	80	300	50	1.0	1A	100	75	TO-202(55)	1.33
		D43C8	3.0	40	120	200	0.5	1A	50	150 Typ.	TO-202(55)	1.33
		D45C8	4.0	40	120	200	0.5	1A	50	40 Typ.	TO-220	1.67
	D45H8	10.0	40		4A	1.0	8A	400	40 Typ.	TO-220	1.67	
	PN4355	0.5	100	400	10	1.0	1	1A	100	TO-92(92)	0.625	
50	2N3725		1.0	60	150	100	0.95	1A	100	300	TO-39	0.8
	TN3725		1.0	60	150	100	0.75	1A	100	300	TO-237(91)	0.85
45	BC337	BC327	0.8	100	600	100	0.7	500	50	60 Typ.	TO-92(97)	0.625
	BC635	BC636	0.5	40	250	150	0.50	500	50	130 Typ.	TO-92(94)	0.625
	BC818	BC808	0.5	100	600	100	0.7	500	50	100 Typ.	TO-236*	0.3

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.



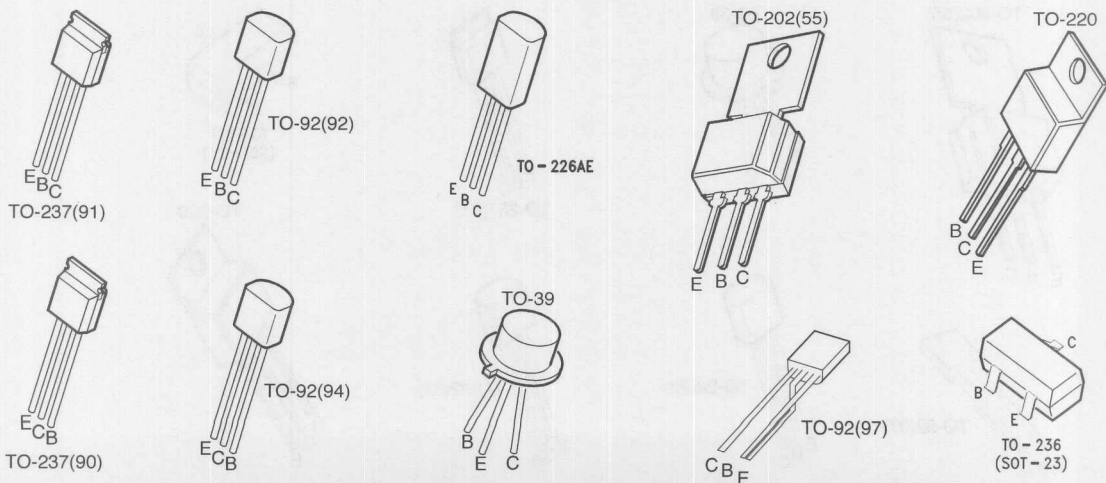
## High Current Drivers (continued)

$V_{CE(sust)}$ (Volts) Min	Devices		$I_C$ (Amps) Max	$h_{FE}$ @ $I_C$			$V_{CE(sat)}$ @ $I_C$ & $I_B$			$f_T$ (MHz) Min	Package	$P_D$ (Amb) (Watts) @25°C
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	mA			
45	BCX19	BCX17	0.5	100	600	100	0.62	500	50	100 Typ.	TO-236*	0.3
	BD371	BD370	1.0	40	400	100	0.7	750	75	50	TO-237(91)	0.85
	BD373	BD372	1.0	40	400	100	0.7	1A	100	50	TO-237(90)	0.85
		D41D4	1.0	50	150	100	0.5	500	50	150 Typ.	TO-202(55)	1.33
		D41D5	1.0	120	360	100	0.5	500	50	40 Typ.	TO-202(55)	1.33
		D45H5	10.0	40		4A	1.0	8A	400	40 Typ.	TO-220	1.67
40	2N6715	2N6727	1.0	50	250	1A	0.5	1A	100	50	TO-237(91)	0.85
	MPSW01A		1.0	50		1A	0.5	1A	100	50	TO-226	1.0
	MPSW51A		1.0	50		1A	0.7	1A	100	50	TO-226	1.0
		2N3467	1.0	40	120	500	1.0	1A	100	175	TO-39	1.0
		2N4037	1.0	50	250	150	1.4	150	15	60	TO-39	1.0
30	NSDU01		1.5	50		1A	0.5	1A	100	50	TO-202(55)	2.0
	2N3724		1.0	60	150	100	0.75	1A	100	300	TO-39	0.8
	2N6714	2N6726	1.0	50	250	1A	0.5	1A	100	50	TO-237(91)	0.85
	D40D1		1.0	50	150	100	1.0	500	50	200 Typ.	TO-202(55)	1.33
	D40D2		1.0	120	360	100	1.0	500	50	200 Typ.	TO-202(55)	1.33
	25	BC338	BC328	0.8	100	600	100	0.7	500	50	200 Typ.	TO-92(97)
BC817		BC807	0.5	100	600	100	0.7	500	50	100 Typ.	TO-236*	0.3
BCX20		BCX18	0.5	100	600	100	0.62	500	50	100 Typ.	TO-236*	0.3
20	BC368	BC369	2.0	85	375	500	0.5	1A	100	200 Typ.	TO-92(94)	1.0

\* TO-236AB is standard for all devices.

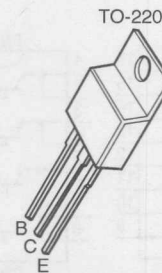
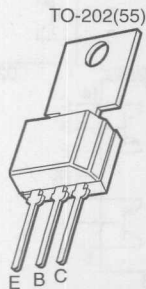
Please refer to Surface Mount section for TO-236 Device Marking.

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# Planar Power Transistors

$V_{CE0(sust)}$ (Volts) Min	Device		$I_C$ Cont (Amps) Max	$h_{FE}$ @ $I_C$			$V_{CE(sat)}$ @ $I_C$		$f_T$ MHz Min	$P_D$ (Amb) (Watts) @25°C	$P_D$ (Case) (Watts) @25°C	Package
	NPN	PNP		Min	Max	(Amps)	(Volts) Max	(Amps)				
250	D40N2		0.1	60	180	0.02			75	2	10	TO-202(55)
30	D40C1		1	10,000	60,000	0.2	1.5	0.5		2	10	TO-202(55)
40	D40C4		1	10,000	60,000	0.2	1.5	0.5		2	10	TO-202(55)
40	D40C5		1	40,000		0.2	1.5	0.5		2	10	TO-202(55)
50	D40C7		1	10,000	60,000	0.2	1.5	0.5		2	10	TO-202(55)
80	D40E7		1	50		0.1	1.0	1.0		2	10	TO-202(55)
30	D40K1		1	10,000		0.2	1.5	1.0		2	10	TO-202(55)
50	D40K2		1	10,000		0.2	1.5	1.5		2	10	TO-202(55)
30	D40K4		1	10,000		0.2	1.5	1.0		2	10	TO-202(55)
30	D40D1		1.5	50	150	0.1	0.5	0.5		2	10	TO-202(55)
				10		1						
30	D40D2		1.5	120	360	0.1	0.5	0.5		2	10	TO-202(55)
				10		1						
45		D41D4	1.5	50	150	0.1	0.5	0.5		2	10	TO-202(55)
				10		1						
45		D41D5	1.5	120	360	0.1	0.5	0.5		2	10	TO-202(55)
				10		1						
60	D44C8	D45C8	3	40	120	0.2	0.5	1.0	32		30	TO-220
				20		1						
80	D44C11	D45C11	3	40	120	0.2	0.5	1.0	32		30	TO-220
				20		1						
45		D45H5	10	60		2	1.0	8.0	40		60	TO-220
				40		4						
60		D45H8	10	60		2	1.0	8.0	40		60	TO-220
				40		4						

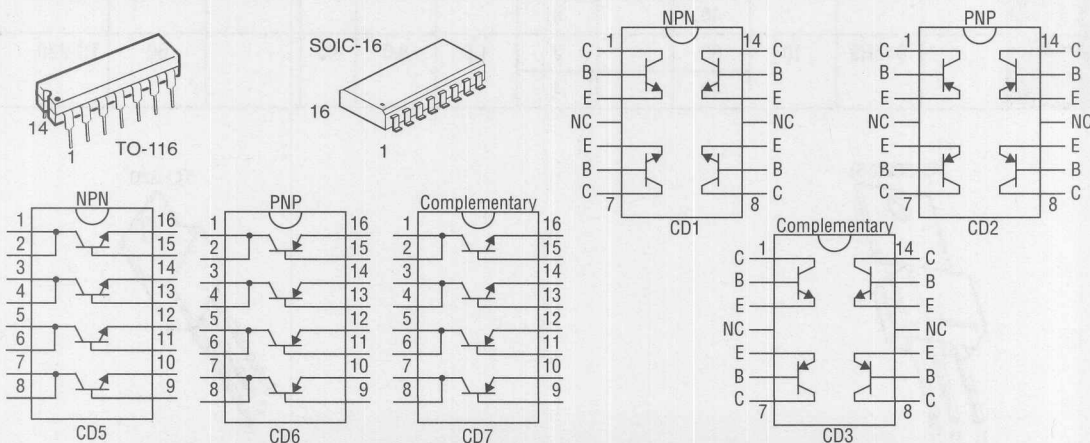




# Multiple Bipolar Transistors—Quad

Device	Type	$V_{CE}$ (V) Min	$I_C$ (A) Max	$h_{FE} @ I_C$		$f_T$ MHz Min	$C_{OB}$ pF Max	$V_{CE(SAT)}$ Volts @ $I_C/I_B$ & $I_C$			Config- uration	Package
				Min	mA			Max		mA		
MMPQ6502	BOTH	30	0.5	100	150	200	8	0.4	10	150	CD7	SOIC-16
MPQ6502	BOTH	30	0.5	100	150	200	8	0.4	10	150	CD3	TO-116
MMPQ6700	BOTH	40	0.2	70	10	200	4.5	0.25	10	1	CD7	SOIC-16
MPQ6700	BOTH	40	0.2	70	10	200	4.5	0.25	10	1	CD3	TO-116
MMPQ2369	NPN	15	0.5	40	10	450	4	0.25	10	10	CD5	SOIC-16
MPQ2369	NPN	15	0.5	40	10	450	4	0.25	10	10	CD1	TO-116
MMPQ2222	NPN	30	0.5	100	150	200	8	0.4	10	150	CD5	SOIC-16
MPQ2222	NPN	30	0.5	100	150	200	8	0.4	10	150	CD1	TO-116
MMPQ3724	NPN	36	1	35	500	300	12	0.32	10	300	CD5	SOIC-16
MPQ3724	NPN	36	1	35	500	300	12	0.32	10	300	CD1	TO-116
MMPQ3725	NPN	40	1	25	500	250	10	0.45	10	500	CD5	SOIC-16
MPQ3725	NPN	40	1	25	500	250	10	0.45	10	500	CD1	TO-116
MMPQ3904	NPN	40	0.2	75	10	250	4	0.2	10	10	CD5	SOIC-16
MPQ3904	NPN	40	0.2	75	10	250	4	0.2	10	10	CD1	TO-116
MMPQ2222A	NPN	40	0.5	100	150	200	8	0.3	10	150	CD5	SOIC-16
MMPQ2907	PNP	40	0.6	100	150	200	8	0.4	10	150	CD6	SOIC-16
MPQ2907	PNP	40	0.6	100	150	200	8	0.4	10	150	CD2	TO-116
MMPQ3467	PNP	40	1	40	500	175	25	0.5	10	500	CD6	SOIC-16
MPQ3467	PNP	40	1	40	500	175	25	0.5	10	500	CD2	TO-116
MMPQ3906	PNP	40	0.2	75	10	200	4.5	0.25	10	10	CD6	SOIC-16
MPQ3906	PNP	40	0.2	75	10	200	4.5	0.25	10	10	CD2	TO-116
MMPQ2907A	PNP	60	0.6	100	150	200	8	0.4	10	150	CD6	SOIC-16

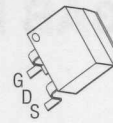
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# TO-263AB DMOS



Surface Mount Devices

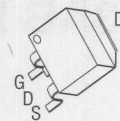
## N Channel

(Volts) Min	Device	$r_{DS(on)}$ @ $I_D/V_{GS}$		$I_D$ (Amps) Max	$P_D$ (Watts) Max
		(m $\Omega$ ) Max	(Amps/Volts)		
100	NDB710A	38	21/10	42	150
	NDB710AE				
	NDB710B	42	21/10	40	
	NDB710BE				
	NDB610A	65	13/10	26	100
	NDB610AE				
	NDB610B	80	12/10	24	
	NDB610BE				
	NDB510A	120	7.5/10	15	60
	NDB510AE				
	NDB510B	150	6.5/10	13	
	NDB510BE				
	NDB410A	250	4/10	8	40
	NDB410AE				
NDB410B	300	3.5/10	7		
NDB410BE					
80	NDB708A	22	31/10	60	150
	NDB708AE				
	NDB708B	25	27/10	52	
	NDB708BE				
	NDB608A	42	18/10	36	100
	NDB608AE				
	NDB608B	45	16/10	32	
	NDB608BE				
	NDB508A	80	9.5/10	19	60
	NDB508AE				
	NDB508B	100	8.5/10	17	
	NDB508BE				
	NDB408A	160	5.5/10	11	40
	NDB408AE				
NDB408B	200	5/10	10		
NDB408BE					

## N Channel

(Volts) Min	Device	$r_{DS(on)}$ @ $I_D/V_{GS}$		$I_D$ (Amps) Max	$P_D$ (Watts) Max
		(m $\Omega$ ) Max	(Amps/Volts)		
60	NDB706A	15	40/10	75	150
	NDB706AE				
	NDB706B	18	35/10	70	
	NDB706BE				
	NDB606A	25	24/10	48	100
	NDB606AE				
	NDB606B	28	21/10	42	
	NDB606BE				
	NDB506A	50	13/10	26	60
	NDB506AE				
	NDB506B	60	12/10	24	
	NDB506BE				
	NDB406A	100	7.5/10	15	40
	NDB406AE				
NDB406B	150	6/10	12		
NDB406BE					
50	NDB705A	15	40/10	75	150
	NDB705AE				
	NDB705B	18	35/10	70	
	NDB705BE				
	NDB605A	25	24/10	48	100
	NDB605AE				
	NDB605B	28	21/10	42	
	NDB605BE				
	NDB505A	50	13/10	26	60
	NDB505AE				
	NDB505B	60	12/10	24	
	NDB505BE				
	NDB405A	100	7.5/10	15	40
	NDB405AE				
NDB405B	150	6/10	12		
NDB405BE					

# TO-263AB Logic Level DMOS



## N Channel

(Volts) Min	Device	$r_{DS(on)}$ @ $I_D/V_{GS}$		$I_D$ (Amps) Max	$P_D$ (Watts) Max
		(m $\Omega$ ) Max	(Amps/Volts)		
100	NDB710AEL	38	21/5	42	150
	NDB710AL				
	NDB710BEL	42	21/5	40	
	NDB710BL				
	NDB610AEL	65	13/5	26	100
	NDB610AL				
	NDB610BEL	80	12/5	24	
	NDB610BL				
	NDB510AEL	120	7.5/5	15	60
	NDB510AL				
	NDB510BEL	150	6.5/5	13	
	NDB510BL				
	NDB410AEL	250	4/5	8	40
	NDB410AL				
NDB410BEL	300	3.5/5	7		
NDB410BL					
80	NDB708AEL	22	19/5	60	150
	NDB708AL				
	NDB708BEL	25	18/5	52	
	NDB708BL				
	NDB608AEL	42	18/5	36	100
	NDB608AL				
	NDB608BEL	45	16/5	32	
	NDB608BL				
	NDB508AEL	80	9.5/5	19	60
	NDB508AL				
	NDB508BEL	100	8.5/5	17	
	NDB508BL				
	NDB408AEL	160	5.5/5	11	40
	NDB408AL				
NDB408BEL	200	5/5	10		
NDB408BL					

## N Channel

(Volts) Min	Device	$r_{DS(on)}$ @ $I_D/V_{GS}$		$I_D$ (Amps) Max	$P_D$ (Watts) Max
		(m $\Omega$ ) Max	(Amps/Volts)		
60	NDB706AEL	15	40/5	75	150
	NDB706AL				
	NDB706BEL	18	35/5	70	
	NDB706BL				
	NDB606AEL	25	24/5	48	100
	NDB606AL				
	NDB606BEL	28	21/5	42	
	NDB606BL				
	NDB506AEL	50	13/5	26	60
	NDB506AL				
	NDB506BEL	60	12/5	24	
	NDB506BL				
	NDB406AEL	100	7.5/5	15	40
	NDB406AL				
NDB406BEL	150	6/5	12		
NDB406BL					
50	NDB705AEL	15	40/5	75	150
	NDB705AL				
	NDB705BEL	18	35/5	70	
	NDB705BL				
	NDB605AEL	25	24/5	48	100
	NDB605AL				
	NDB605BEL	28	21/5	42	
	NDB605BL				
	NDB505AEL	50	13/5	26	60
	NDB505AL				
	NDB505BEL	60	12/5	24	
	NDB505BL				
	NDB405AEL	100	7.5/5	15	40
	NDB405AL				
NDB405BEL	150	6/5	12		
NDB405BL					

# TO-252 (D-PAK) DMOS

N Channel

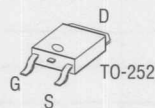
(Volts) Min	Device	$r_{DS(on)}$ @ $I_D/V_{GS}$		$I_D$ (Amps) Max	$P_D$ (Watts) Max
		(m $\Omega$ ) Max	(Amps/ Volts)		
60	NDD506A	50	9.5/10	19	72
	NDD506AE				
	NDD506B	60	9.0/10	18	72
	NDD506BE				
	NDD406A	100	7.5/10	15	40
	NDD406AE				
	NDD406B	150	6.0/10	12	40
	NDD406BE				
	MTD3055E	150	4.0/10	8	20

# TO-252 Logic Level DMOS

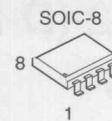
N Channel

(Volts) Min	Device	$r_{DS(on)}$ @ $I_D/V_{GS}$		$I_D$ (Amps) Max	$P_D$ (Watts) Max
		(m $\Omega$ ) Max	(Amps/ Volts)		
60	NDD506AL	50	9.5/5	19	72
	NDD506AEL				
	NDD506BL	60	9.0/5	18	72
	NDD506BEL				
	NDD406AL	100	7.5/5	15	40
	NDD406AEL				
	NDD406BL	150	6.0/5	12	40
	NDD406BEL				
	MTD3055EL	180	6.0/5	12	40

Surface Mount Devices



# SOIC-8 Dual/Single DMOS



- Second source of Siliconix Little Foot™ SI9xxx Series.

## N Channel

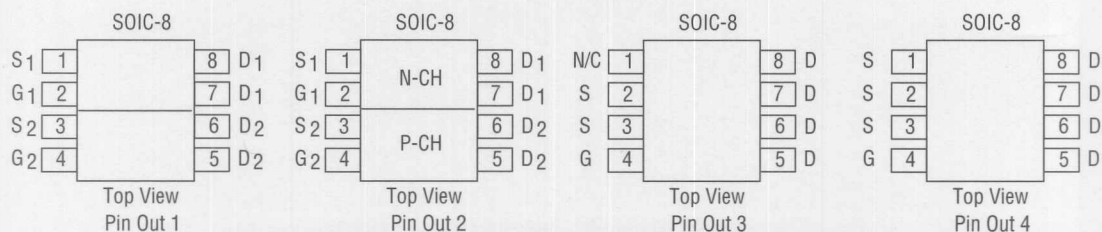
(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )			$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$	$V_{GS} = 2.7V$				
30	NDS9410	0.03	0.05		7	2	Single	3
30	NDS9936	0.05	0.08		5.0	2	Dual	1
60	NDS9945	0.1	0.2		3.5	2	Dual	1
50	NDS9955	0.13	0.2		3	2	Dual	1
20	NDS9956	0.1	0.2		3.5	2	Dual	1
50	NDS9959	0.3	0.5		2.0	2	Dual	1

## P Channel

(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )			$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$	$V_{GS} = 2.7V$				
-20	NDS9400	0.25	0.4		-2.5	2	Single	3
-20	NDS9405	0.1	0.16		-4.3	2	Single	3
-60	NDS9407*	0.15	0.24		-3.3	2	Single	4
-20	NDS9430	0.06	0.1		-5.3	2	Single	4
-12	NDS9933		0.13	0.21	3.2	2	Dual	1
-30	NDS9435	0.07	0.1		-5.3	2	Single	4
-12	NDS9433		0.075	0.11	5.1	2	Single	4
-20	NDS9947	0.11	0.19		-3.5	2	Dual	1
-60	NDS9948*	0.25	0.5		-2.3	2	Dual	1
-20	NDS9953	0.25	0.4		-2.3	2	Dual	1

\* Advance Information.

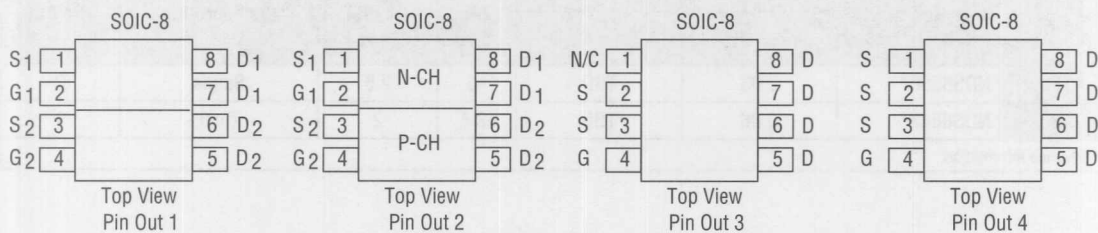
8



# SOIC-8 Dual/Single DMOS (continued)

## Complementary N-P Channel

(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )			$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$	$V_{GS} = 2.7V$				
20	NDS9942	0.125	0.25		3	2	N Channel	2
-20		0.2	0.35		-2.5		P Channel	
20	NDS9943	0.125	0.25		3	2	N Channel	2
-20		0.16	0.3		-2.8		P Channel	
25	NDS9952	0.1	0.15		3	2	N Channel	2
-25		0.25	0.4		-2.3		P Channel	
20	NDS9958	0.1	0.15		3.5	2	N Channel	2
-20		0.11	0.19		-3		P Channel	





- Special package technology to reduce package resistance.
- High cell density (5 million cells /in<sup>2</sup>) for low on-resistance.

### N Channel

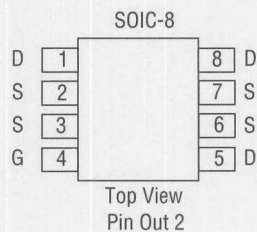
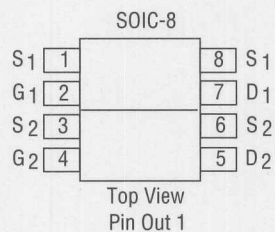
(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$				
20	NDS8410*	0.015	TBD	7	2.5	Single	2
20	NDS8936*	0.03	TBD	5	2	Dual	1

\* Advance Information.

### P Channel

(Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (A) Max	$P_D$ (Watts) Max	Configuration	Pin Out
		$V_{GS} = 10V$	$V_{GS} = 4.5V$				
-20	NDS8330*	0.03	TBD	-5	2.5	Single	2
-20	NDS8847*	0.06	TBD	-3.5	2	Dual	1

\* Advance Information.



# SuperSot DMOS (SOT-23)

- High current handling
- High cell density (5 million cells/in<sup>2</sup>) for low on-resistance.

$V_{(BR)DSS}$ (Volts) Min	Device		$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (Amps) Max	Package	$P_D$ (mW) Max
	N-Channel	P-Channel	$V_{GS} = 10V$	$V_{GS} = 4.5V$			
20	NDS351N		TBD	0.25	0.9	TO-236*	400
-20		NDS352P	TBD	0.5	0.6	TO-236*	400

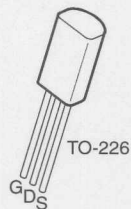
\* TO-236AB is standard for all devices.  
Please refer to Surface Mount section for TO-236 Device Marking.



## TO-226, SOT-223 DMOS

$V_{(BR)DSS}$ (Volts) Min	Device	$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (Amps) Max	$V_{GS(th)}$ (Volts)	Package	$P_D$ (mW) Max
		$V_{GS} = 10V$	$V_{GS} = 5V$				
100V	BUK482-100*	0.28		1.8	2.1-4	SOT-223	1.8

\* Advance Information.



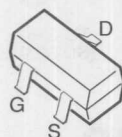
# Signal DMOS (TO-92, TO-236)

$V_{(BR)DSS}$ (Volts) Min	Device		$r_{DS(on)}$ Max ( $\Omega$ )		$I_D$ (Amps) Max	$V_{GS(th)}$ (Volts)	Package	$P_D$ (mW) Max
	N-Channel	P-Channel	$V_{GS} = 10V$	$V_{GS} = 5V$				
100	BSS123		6.0	10.0 @ 4.5V	0.17	0.8 to 2	TO-236*	300
60	NDS7002A		2.0	3.0	0.28	1 to 2.5	TO-236*	300
	MMBF170		5.0		0.5	0.8 to 3	TO-236*	300
	2N7002		7.5	7.5	0.115	1 to 2.5	TO-236*	200
50	BSS138		3.5	6.0 @ 4.5V	0.22	0.8 to 1.6	TO-236*	300
-60		NDS0610	10	20 @ 4.5V	0.12	-1 to -3.5	TO-236*	300
-50		BSS84**	10		0.13	-0.8 to -2	TO-236*	300

\* TO-236AB is standard for all devices.

Please refer to Surface Mount section for TO-236 Device Marking.

\*\* Advance Information.



TO-236  
(SOT-23)

# JFET General Purpose

Surface Mount Devices

## P Channel

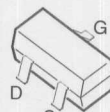
Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (mmho)		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	en @ Freq		Package	Marking
		(V)		(V)	(nA)	Min	Max			Max	(Hz)		
		Min	Max										
MMBF5460	40	0.75	6	-15	1000	1	4	7	2	115	100	TO-236*	6E
MMBF5461	40	1	7.5	-15	1000	1.5	5	7	2	115	100	TO-236*	61U
MMBF5462	40	1.8	9	-15	1000	2	6	7	2	115	100	TO-236*	61V
MMBFJ270	30	0.5	2	-15	1	6	15	t20	t5	t10	1000	TO-236*	62S
MMBFJ271	30	1.5	4.5	-15	1	8	18	t20	t5	t10	1000	TO-236*	62T

\* TO-236AB is standard for all devices.  
t=typical value

## N Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (mmho)		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	en @ Freq		Package	Marking
		(V)		(V)	(nA)	Min	Max			Max	(Hz)		
		Min	Max										
BSR58	40	0.8	4	15	1				t5			TO-236*	M6
MMBF5457	25	0.5	6	15	10	2	5	7	3			TO-236*	6D
MMBF5458	25	1	7	15	10	1.5	5.5	7	3			TO-236*	61S
MMBF5459	25	2	8	15	10	2	6	7	3			TO-236*	61T
MMBFJ201	40	0.3	1.5	20	10	0.5						TO-236*	62P
MMBFJ202	40	0.8	4	20	10	1						TO-236*	62Q
MMBFJ203	40	2	10	20	10	1.5						TO-236*	62R

\* TO-236AB is standard for all devices.  
t=typical value



TO-236  
(SOT-23)

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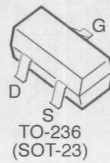
# JFET RF, VHF, UHF Amplifiers

## N Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				Re(Yfs) (mmho) @ f		Re(Yos) (μmho) @ f		Ciss (pF) Max	Crss (pF) Max	NF (dB) @ Rg = 1k		Package	Marking
		(V)		(V)	(nA)	Min	(MHz)	Max	(MHz)			Max	(MHz)		
		Min	Max												
MMBF4416	30	2.5	6	15	1	4	400	100	400	4	0.8	4	400	TO-236*	6A
MMBF5484	25	0.3	3	15	10	2.5	100	75	100	5	1	3	100	TO-236*	6B
MMBF5485	25	0.5	4	15	10	3	400	100	400	5	1	4	400	TO-236*	6M
MMBF5486	25	2	6	15	10	3.5	400	100	400	5	1	4	400	TO-236*	6H
MMBFJ304	30	2	6	15	1	t4.2	400	t80	100					TO-236*	63Q
MMBFJ305	30	0.5	3	15	1	t3.0	400	t80	100					TO-236*	6Q
MMBFJ309	25	1	4	10	1	10	0.001	150	0.001	7.5	2.5			TO-236*	6U
MMBFJ310	25	2	6.5	10	1	8	0.001	150	0.001	7.5	2.5			TO-236*	6T

\* TO-236AB is standard for all devices.

t=typical value



# JFET Switches/Choppers

## P Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				R <sub>DS(on)</sub> (Ω) @ I <sub>D</sub>		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	ton (ns) Max	toff (ns) Max	Package	Marking
		(V)		(V)	(nA)	Min	(mA)						
		Min	Max										
MMBF5114	30	5	10	-15	1	75	1	25	7	16	21	TO-236*	61N
MMBF5115	30	3	6	-15	1	100	1	25	7	30	38	TO-236*	61P
MMBF5116	30	1	4	-15	1	150	1	25	7	42	60	TO-236*	61Q
MMBFJ174	30	5	10	-15	10	85	1	11	5.5	2	5	TO-236*	6V
MMBFJ175	30	3	6	-15	10	125	0.5	11	5.5	5	10	TO-236*	6W
MMBFJ176	30	1	4	-15	10	250	0.25	11	5.5	15	15	TO-236*	6X
MMBFJ177	30	0.8	2.25	-15	10	300	0.1	11	5.5	20	20	TO-236*	6Y

\* TO-236AB is standard for all devices.

## N Channel

Device	BV <sub>GSS</sub> (V) Min	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				R <sub>DS(on)</sub> (Ω) @ I <sub>D</sub>		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	ton (ns) Max	toff (ns) Max	Package	Marking
		(V)		(V)	(nA)	Min	(mA)						
		Min	Max										
MMBF4091	40	5	10	20	1	30	1	16	5	25	40	TO-236*	61J
MMBF4092	40	2	7	20	1	50	1	16	5	35	60	TO-236*	61K
MMBF4093	40	1	5	20	1	80	1	16	5	60	80	TO-236*	61L
MMBF4391	40	4	10	20	1	30	1	14	3.5	15	20	TO-236*	6J
MMBF4392	40	2	5	20	1	60	1	14	3.5	15	35	TO-236*	6K
MMBF4393	40	0.5	3	20	1	100	1	14	3.5	15	55	TO-236*	6G
MMBF4859	30	4	10	15	0.5	25		18	8	9	25	TO-236*	61M
MMBF4860	30	2	6	15	0.5	40		18	8	10	50	TO-236*	6F
MMBF4861	30	0.8	4	15	0.5	60		18	8	20	100	TO-236*	6N
MMBFJ111	35	3	10	5	1000	30	1					TO-236*	6P
MMBFJ112	35	1	5	5	1000	50	1					TO-236*	6R
MMBFJ113	35	0.5	3	5	1000	100	1					TO-236*	6S

\* TO-236AB is standard for all devices.

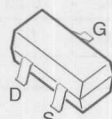


# JFET Ultra Low Input Current Amplifiers

## N Channel

Device	BV <sub>GSS</sub> (V) Min	I <sub>GSS</sub> (pA) Max	V <sub>P</sub> @ V <sub>DS</sub> I <sub>D</sub>				G <sub>fs</sub> (μmho)		C <sub>iss</sub> (pF) Max	C <sub>rss</sub> (pF) Max	Package	Marking
			(V)		(V)	(nA)	Min	Max				
			Min	Max								
MMBF4117	40	10	0.6	2.8	10	1	20	210	3	1.5	TO-236*	61A
MMBF4118	40	10	1	3	10	1	80	250	3	1.5	TO-236*	61C
MMBF4119	40	10	2	6	10	1	100	330	3	1.5	TO-236*	61E

\* TO-236AB is standard for all devices.

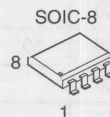


TO-236  
(SOT-23)

# Dual JFETs

## N-Channel

Device	$V_p$ (V)		$G_{fs}$ (mmho)		$V_{GS1-2}$ $V_{os}$ (mV) Max	Drift ( $\mu$ V/C) $\Delta V_{GS}$ Max	$I_{DSS}$ Match %	$G_{fs}$ Match %	Package
	Min	Max	Min	Max					
NPDS404	0.5	2.5	2	7	15	25			SOIC-8
NPDS405	0.5	2.5	2	7	20	40			SOIC-8
NPDS406	0.5	2.5	2	7	40	80			SOIC-8
NPDS5564	0.5	3	7.5	12.5	5	10		5	SOIC-8
NPDS5565	0.5	3	7.5	12.5	10	25		10	SOIC-8
NPDS5566	0.5	3	7.5	12.5	20	50		10	SOIC-8
NPDS5911	1	5	5	10	10	20	5	5	SOIC-8
NPDS5912	1	5	5	10	15	40	5	5	SOIC-8



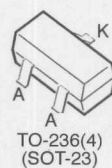


# Silicon Single Junction Diodes

$V_{RRM}$ (Volts) Min	Device	$I_{RRM}$ (nA) Max	$V_{FM}$ @ $I_F$		$t_{rr}$ (ns) Max	Package	Configuration	Marking Color Bands** 1st/2nd
			(Volts) Max	(mA)				
200	BAS21	100	1.0	100	50	TO-236*	1	A82
	MMBD1401	100	1.0	200	50	TO-236*	1	29
	MMBD1402	100	1.0	200	50	TO-236*	2	31
	MMBD1403	100	1.0	200	50	TO-236*	3	32
	MMBD1404	100	1.0	200	50	TO-236*	4	33
	MMBD1405	100	1.0	200	50	TO-236*	5	34
	MMBD1501A	1.0	1.1	200		TO-236*	1	11A
	MMBD1502A	1.0	1.1	200		TO-236*	2	12A
	MMBD1503A	1.0	1.1	200		TO-236*	3	13A
	MMBD1504A	1.0	1.1	200		TO-236*	4	14A
	MMBD1505A	1.0	1.1	200		TO-236*	5	15A
150	BAS20	100	1.0	100	50	TO-236*	1	A81
	FDLL300	1.0	1.0	200		LL-34		BRN/GRN
	FDLL3595	1.0	1.0	200		LL-34		ORN/YEL
120	BAS19	100	1.0	100	50	TO-236*	1	A8
	BAS29	100	0.84	50	50	TO-236*	1	L20
	BAS31	100	0.84	50	50	TO-236*	3	L21
	BAS35	100	0.84	50	50	TO-236*	5	L22
100	FDLL4148	25	1.0	10	4.0	LL-34		BLK/BRN
	FDLL4448	25	1.0	100	4.0	LL-34		BRN/BLK
	FDLL914	25	1.0	10	4.0	LL-34		BLK/BRN
	MMBD1201	25	1.0	200	4.0	TO-236*	1	24
	MMBD1202	25	1.0	200	4.0	TO-236*	2	25

\* TO-236AB is standard for all devices.  
 \*\* Color Code: BLK=Black; ORN=Orange; BLU=Blue; BRN=Brown; YEL=Yellow; PUR=Purple; RED=Red; GRN=Green; GRY=Gray; WHT=White

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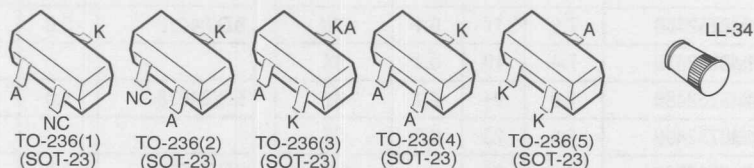
# Silicon Single Junction Diodes (continued)

Surface Mount Devices

$V_{RRM}$ (Volts) Min	Device	$I_{RRM}$ (nA) Max	$V_{FM}$ @ $I_F$		$t_{rr}$ (ns) Max	Package	Configuration	Marking Color Bands** 1st/2nd
			(Volts) Max	(mA)				
100	MMBD1203	25	1.0	200	4.0	TO-236*	3	26
	MMBD1204	25	1.0	200	4.0	TO-236*	4	27
	MMBD1205	25	1.0	200	4.0	TO-236*	5	28
	MMBD4148	25	1.0	10	4.0	TO-236*	1	5H
	MMBD914	25	1.0	10	4.0	TO-236*	1	5D
75	BAS16	1000	1.1	50	6.0	TO-236*	1	A6
	FDLL4150	100	1.0	200	4.0	LL-34		BLK/ORN
	FDLL600	100	1.0	200	4.0	LL-34		RED/WHT
70	BAV70	5000	1.1	50	6.0	TO-236*	4	A4
	BAV99	2500	1.1	50	6.0	TO-236*	3	A7
	BAW56	2500	1.1	50	6.0	TO-236*	5	A1
50	BAV74	100	1.0	100	4.0	TO-236*	4	JA
30	MMBD1701	50	1.1	50	0.70	TO-236*	1	85
	MMBD1702	50	1.1	50	0.70	TO-236*	2	86
	MMBD1703	50	1.1	50	0.70	TO-236*	3	87
	MMBD1704	50	1.1	50	0.70	TO-236*	4	88
	MMBD1705	50	1.1	50	0.70	TO-236*	5	89

\* TO-236AB is standard for all devices.

\*\* Color Code: BLK=Black; ORN=Orange; BLU=Blue; BRN=Brown; YEL=Yellow; PUR=Purple; RED=Red; GRN=Green; GRY=Gray; WHT=White



Configuration	1	2	3	4	5
PIN OUT DIAGRAM					
TOP VIEW					

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# TO-236AB (SOT-23) Zener Diodes

V <sub>Z</sub> (Volts)	Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (μA)	Marking
3.3	MMBZ5226B	20	28	25	8A
3.6	MMBZ5227B	20	24	15	8B
3.9	MMBZ5228B	20	23	10	8C
4.3	MMBZ5229B	20	22	5.0	8D
4.7	MMBZ5230B	20	19	5.0	8E
5.1	MMBZ5231B	20	17	5.0	8F
5.6	MMBZ5232B	20	11	5.0	8G
6.0	MMBZ5233B	20	7.0	5.0	8H
6.2	MMBZ5234B	20	7.0	5.0	8J
6.8	MMBZ5235B	20	5.0	3.0	8K
7.5	MMBZ5236B	20	6.0	3.0	8L
8.2	MMBZ5237B	20	8.0	3.0	8M
8.7	MMBZ5238B	20	8.0	3.0	8N
9.1	MMBZ5239B	20	10	3.0	8P
10	MMBZ5240B	20	17	3.0	8Q
11	MMBZ5241B	20	22	2.0	8R
12	MMBZ5242B	20	30	1.0	8S
13	MMBZ5243B	9.5	13	0.5	8T
14	MMBZ5244B	9.0	15	0.1	8U
15	MMBZ5245B	8.5	16	0.1	8V
16	MMBZ5246B	7.8	17	0.1	8W
17	MMBZ5247B	7.4	19	0.1	8X
18	MMBZ5248B	7.0	21	0.1	8Y
19	MMBZ5249B	6.6	23	0.1	8Z
20	MMBZ5250B	6.2	25	0.1	81A
22	MMBZ5251B	5.6	29	0.1	81B
24	MMBZ5252B	5.2	33	0.1	81C
25	MMBZ5253B	5.0	35	0.1	81D
27	MMBZ5254B	4.6	41	0.1	81E
28	MMBZ5255B	4.5	44	0.1	81F
30	MMBZ5256B	4.2	49	0.1	81G
33	MMBZ5257B	3.8	58	0.1	81H

Tolerance 5%	I <sub>ZT</sub> (mA)	Z <sub>Z</sub> (Ω)	I <sub>R</sub> (nA)	Marking
BZX84C4V7	5.0	80	3000	Z1
BZX84C5V1	5.0	60	2000	Z2
BZX84C5V6	5.0	40	1000	Z3
BZX84C6V2	5.0	10	3000	Z4
BZX84C6V8	5.0	15	2000	Z5
BZX84C7V5	5.0	15	1000	Z6
BZX84C8V2	5.0	15	700	Z7
BZX84C9V1	5.0	15	500	Z8
BZX84C10	5.0	20	200	Z9
BZX84C11	5.0	20	100	Y1
BZX84C12	5.0	25	100	Y2
BZX84C13	5.0	30	100	Y3
BZX84C15	5.0	30	50	Y4
BZX84C16	5.0	40	50	Y5
BZX84C18	5.0	45	50	Y6
BZX84C20	5.0	55	50	Y7
BZX84C22	5.0	55	50	Y8
BZX84C24	5.0	70	50	Y9
BZX84C27	2.0	80	50	Y10
BZX84C30	2.0	80	50	Y11
BZX84C33	2.0	80	50	Y12

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# Bipolar General Purpose Amplifiers and Switches

Surface Mount Devices

$V_{CE0(sust)}$ (Volts) Min	Device		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C	Marking NPN/PNP
	NPN	PNP		Min	Max	mA	(MHz) Min	mA				
80	BCP56	BCP53	1500	40	250	150				SOT-223	1500	
65	BC846		100	110		0.01	300 Typ	100		TO-236*	350	Note (1)
					450	2.0		100		TO-236*	350	
		BC856	100	125	475	2.0	300 Typ	10	10	TO-236*	350	Note (2)
60		MMBT2907A	600	100	300	150	200			TO-236*		2F
		PZT2907A	600	100	300	10	200	50		SOT-223	1500	
	BCP55	BCP52	1500	40	250	150				SOT-223	1500	
45	BC817	BC807	1000	100	600	100	200 Typ	10	10	TO-236*	350	Note (3)/(4)
	BC847		100	110		0.01	300 Typ			TO-236*		Note (5)
						800	2.0		10	10	TO-236*	350
	BC850		100	200		0.01	300 Typ			TO-236*		Note (6)
						800	2.0		10	4.0	TO-236*	350
	BCX19	BCX17	1000	100	600	100	100 Typ	10	3.0	TO-236*	350	U1
	BCX70		100	120	630	2.0	125			TO-236*		Note (7)
	MMBT100	MMBT200	500	100	450	10	250	10	3.0	TO-236*	350	N1 / N2
		BC857	100	125	800	2.0	300 Typ	50		TO-236*	350	Note (8)
		BC860	100	125	800	2.0	300 Typ	50		TO-236*	350	Note (9)
	BCX71	100	120	630	2.0	125 Typ	50		TO-236*	350	Note (10)	
40	MMBT2222A		500	100	300	150	300	50		TO-236*	350	1P
	PZT2222A		600	100	300	10	300	20		SOT-223	1500	
	PZT3904		200	100	300	10	300	10		SOT-223	1500	
	MMBT3904		200	100	300	10	300	10	6.0	TO-236*	350	1A
	MMBT4400		600	50	150	150	200	20	4.0	TO-236*	350	83
	MMBT4401		600	100	300	150	250	20		TO-236*	350	2X
		MMBT2907	600	100	300	150	200	20		TO-236*	350	2B
		MMBT3906	200	100	300	10	250	10	5.0	TO-236*	350	2A
		PZT3906	200	100	300	10	250	10		SOT-223	1500	
		MMBT4402	600	50	150	150	150	10	4.0	TO-236*	350	3N
	MMBT4403	600	100	300	150	200	10	6.0	TO-236*	350	2T	
32	BCW33		100	420	800	2.0	300 Typ	10	5.0	TO-236*	350	D3

\* TO-236AB is standard for all devices.

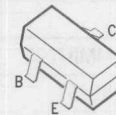
## Bipolar General Purpose Amplifiers and Switches (continued)

$V_{CE0(sust)}$ (Volts) Min	Device		$I_C$ (mA) Max	$h_{FE} @ I_C$			$f_T @ I_C$		NF (dB) Max	Package	$P_D (Amb)$ (mW) @25°C	Marking NPN/PNP
	NPN	PNP		Min	Max	mA	(MHz) Min	mA				
30	BC848		100	110		0.01	300 Typ	10	5.0	TO-236*	350	Note (11)
					800	2.0			10	4.0	TO-236*	350
	BC849		100	200		0.01	300 Typ	20		TO-236*	350	Note (12)
					800	2.0		20		TO-236*	350	
	MMBT2222		500	100	300	150	250	20		TO-236*	350	1B
	MMBT4123		200	50	150	2.0	250	20		TO-236*	350	ZE
		BC858	100	125	800	2.0	300 Typ	10	10	TO-236*	350	Note (13)
	BC859	100	125	800	2.0	300 Typ	10	10	TO-236*	350	Note (14)	
	MMBT4125	200	50	150	2.0	200	10	10	TO-236*	350	ZD	
25	BC818	BC808	500	100	600	100	150 Typ	10	4.0	TO-236*	350	Note (15)/(16)
	BCX18		500	100	600	100	200 Typ	10	3.0	TO-236*	350	T2
	BCX20		500	100	600	100	130 Typ	20	6.0	TO-236*	350	U2
	MMBT4124		200	120	360	2.0	300	50		TO-236*	350	ZC
		MMBT4126	200	120	360	2.0	250	50		TO-236*	350	ZF

Note :

- (1) BC846 - Suffix/[Marking] : A/[1A], B/[1B]
- (2) BC856 - Suffix/[Marking] : A/[3A], B/[3B]
- (3) BC817 - Suffix/[Marking] : -16/[6A], -25/[6B], -40/[6C]
- (4) BC807 - Suffix/[Marking] : -16/[5A], -25/[5B], -40/[5C]
- (5) BC847 - Suffix/[Marking] : A/[1E], B/[1F], C/[1G]
- (6) BC850 - Suffix/[Marking] : B/[2F], C/[2G]
- (7) BCX70 - Suffix/[Marking] : G/[AG], H/[AH], J/[AJ]
- (8) BC857 - Suffix/[Marking] : A/[3E], B/[3F], C/[3G]
- (9) BC860 - Suffix/[Marking] : A/[4E], B/[4F], C/[4G]
- (10) BCX71 - Suffix/[Marking] : G/[BG], H/[BH], J/[BJ], K/[BK]
- (11) BC848 - Suffix/[Marking] : A/[1J], B/[1K], C/[1L]
- (12) BC849 - Suffix/[Marking] : B/[2B], C/[2C]
- (13) BC858 - Suffix/[Marking] : A/[3J], B/[3K], C/[3L]
- (14) BC859 - Suffix/[Marking] : A/[4A], B/[4B], C/[4C]
- (15) BC818 - Suffix/[Marking] : -16/[6E], -25/[6F], -40/[6G]
- (16) BC808 - Suffix/[Marking] : -16/[5E], -25/[5F], -40/[5G]

\* TO-236AB is standard for all devices.



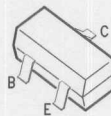
TO - 236  
(SOT - 23)

# Bipolar High Speed Saturated Switching Transistors

Surface Mount Devices

$V_{CE0(Sust)}$ (Volts) Min	Device		$t_{on}$ (ns) Max	$t_{off} @ I_C$		$h_{FE} @ I_C$		$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D (Amb)$ (mW) @25°C	Marking
	NPN	PNP		(ns) Max	mA	Min	mA	(Volts) Max	mA	mA				
60		MMBT2907A	45	100	150	100	150	0.4	150	15	200	TO-236*	350	2F
40	BSR17A		70	250	10	100	10	0.2	10	1.0	300	TO-236*	350	U92
		MMBT2222A	35	285	150	100	150	0.3	150	15	300	TO-236*	350	1P
		MMBT3904	70	250	10	100	10	0.2	10	1.0	300	TO-236*	350	1A
		MMBT4401	35	255	150	100	300	0.4	150	15	250	TO-236*	350	2X
		MMBT3906	70	300	10	100	10	0.25	10	1.0	250	TO-236*	350	2A
15		MMBT4403	35	255	150	100	150	0.4	150	15	200	TO-236*	350	2T
	MMBT2369A		12	18	10	40	10	0.2	10	1.0	500	TO-236*	350	1S
	MMBT3646		18	28	300	30	30	0.2	30	3.0	350	TO-236*	350	23
		MMBT4209	15	20	10	50	10	0.18	10	1.0	850	TO-236*	350	22
12		MMBT5771	15	20	10	50	10	0.18	10	1.0	850	TO-236*	350	3R
	BSV52		12	18	10	40	10	0.25	10	1.0	500	TO-236*	350	B2
		MMBT3640	25	35	50	30	10	0.2	10	1.0	500	TO-236*	350	2J
		MMBT4258	15	20	10	30	50	0.15	10	1.0	700	TO-236*	350	78

\* TO-236AB is standard for all devices.

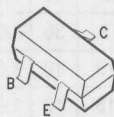


TO-236  
(SOT-23)

# Bipolar High Voltage Amplifiers

$V_{CE0(Sust)}$ (Volts) Min	Device		$I_C$ (mA) Max	$h_{FE}$ @ $I_C$		$V_{CE(sat)}$ @ $I_C$ & $I_B$			$f_T$ (MHz) Min	Package	$P_D$ (Amb) (mW) @25°C	Marking
	NPN	PNP		Min	(mA)	(Volts) Min	(mA)	(mA)				
300	MMBTA42		500	40	30	0.5	20	2.0	50	TO-236*	350	1D
	PZTA42		500	40	30	0.5	20	2.0	50	SOT-223	1500	
		PZTA92	500	25	30	0.5	20	2.0	50	SOT-223	1500	
		MMBTA92	500	25	30	0.5	20	2.0	50	TO-236*	350	2D
160	MMBT5551		600	80	10	0.2	50	5.0	100	TO-236*	350	3S
		MMBT5401	600	60	10	0.5	50	5.0	100	TO-236*	350	2L
140	MMBT5550		600	60	10	0.25	50	5.0	100	TO-236*	350	1F

\* TO-236AB is standard for all devices.



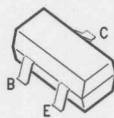
TO-236  
(SOT-23)

# Bipolar Darlington Transistors

Surface Mount Devices

$V_{CE0(sust)}$ (Volts) Min	Device		$I_C$ Max (Amps)	$h_{FE}$ @ $I_C$		$V_{CE(sat)}$ @ $I_C$ & $I_B$			$f_T$ (MHz) Min	Package	$P_D$ (Amb) (Watts) @25°C	Marking NPN/PNP
	NPN	PNP		Min	mA	(Volts) Max	mA	$\mu A$				
100	PZT7052		0.5	10,000	100	1.5	100	100	100	SOT-223	1.5	
				1,000	1A							
30	BCV27	BCV26	1	4,000	1	1.0	100	100		TO-236*	0.35	FF / FD
				10,000	10							
				20,000	100							
	MMBTA13		0.3	5,000	10	1.5	100	100	125	TO-236*	0.35	1M
				10,000	100							
	MMBTA14		0.3	10,000	10	1.5	100	100	125	TO-236*	0.35	1N
				20,000	100							
	PZTA14	PZTA64	0.3	10,000	100	1.5	100	100	125	SOT-223	1.5	
				20,000	100							

\* TO-236AB is standard for all devices.



TO-236  
(SOT-23)



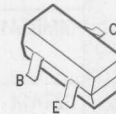
# Bipolar High Current Drivers

$V_{CE0(sust)}$ (Volts) Min	Device		$I_C$ (Amps) Max	$h_{FE} @ I_C$			$V_{CE(sat)} @ I_C \& I_B$			$f_T$ (MHz) Min	Package	$P_D(Amb)$ (Watts) @25°C	Marking NPN/PNP
	NPN	PNP		Min	Max	mA	(Volts) Max	mA	mA				
80	MMBTA06	MMBTA56	0.5	100		100	0.25	100	10	100	TO-236*	0.35	1G / 2G
60	MMBTA05	MMBTA55	0.5	100		100	0.25	100	10	100	TO-236*	0.35	1H / 2H
45	BC818	BC808	0.5	100	600	100	0.7	500	50	100 Typ.	TO-236*	0.3	Note (1) / (2)
	BCX19	BCX17	0.5	100	600	100	0.62	500	50	100 Typ.	TO-236*	0.3	U2 / T2
25	BC817	BC807	0.5	100	600	100	0.7	500	50	100 Typ.	TO-236*	0.3	Note (3) / (4)
	BCX20	BCX18	0.5	100	600	100	0.62	500	50	100 Typ.	TO-236*	0.3	U1 / T1

\* TO-236AB is standard for all devices.

Notes:

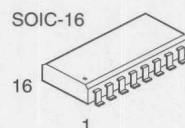
- (1) BC818 - Suffix/[Marking] : -16/[6E], -25/[6F], -40/[6G]
- (2) BC808 - Suffix/[Marking] : -16/[5E], -25/[5F], -40/[5G]
- (3) BC817 - Suffix/[Marking] : -16/[6A], -25/[6B], -40/[6C]
- (4) BC807 - Suffix/[Marking] : -16/[5A], -25/[5B], -40/[5C]



TO - 236  
(SOT - 23)

# Multiple Bipolar Transistors—Quad

Device	Type	V <sub>CE</sub> (V) Min	I <sub>C</sub> (A) Max	h <sub>FE</sub> @ I <sub>C</sub>		f <sub>T</sub> MHz Min	C <sub>OB</sub> pF Max	V <sub>CE(sat)</sub> @ I <sub>C</sub> & I <sub>B</sub>			Config- uration	Package
				Min	mA			Volts Max	mA	mA		
MMPQ2907A	PNP	60	0.6	100	150	200	8	0.4	10	150	CD6	SOIC-16
MMPQ2907	PNP	40	0.6	100	150	200	8	0.4	10	150	CD6	SOIC-16
MMPQ3467	PNP	40	1	40	500	175	25	0.5	10	500	CD6	SOIC-16
MMPQ3906	PNP	40	0.2	75	10	200	4.5	0.25	10	10	CD6	SOIC-16
MMPQ2222A	NPN	40	0.5	100	150	200	8	0.3	10	150	CD5	SOIC-16
MMPQ3725	NPN	40	1	25	500	250	10	0.45	10	500	CD5	SOIC-16
MMPQ3904	NPN	40	0.2	75	10	250	4	0.2	10	10	CD5	SOIC-16
MMPQ3724	NPN	36	1	35	500	300	12	0.32	10	300	CD5	SOIC-16
MMPQ2222	NPN	30	0.5	100	150	200	8	0.4	10	150	CD5	SOIC-16
MMPQ2369	NPN	15	0.5	40	10	450	4	0.25	10	10	CD5	SOIC-16
MMPQ6700	BOTH	40	0.2	70	10	200	4.5	0.25	10	1	CD7	SOIC-16
MMPQ6502	BOTH	30	0.5	100	150	200	8	0.4	10	150	CD7	SOIC-16





# Ordering Information

Ordering Information / Packaging Options .....9-1



# Ordering Information / Packaging Options

## Surface Mount Devices

For all surface mount devices, no suffix indicates Tape and Reel.

### TO-252

No suffix indicates Tape and Reel.

Tape and reel standard pack 2500.

L86Z indicates Tube.

### LL34

No suffix indicates Tape and Reel.

Tape and reel standard pack 2500.

S62Z indicates bulk pack.

### SOT-223

No suffix indicates Tape and Reel (7").

Tape and reel (7") standard pack 2500.

S62Z indicates bulk pack.

### TO-263AB

No suffix indicates Tape and Reel.

Tape and reel standard pack 800.

L86Z indicates tube.

## SOIC

No suffix indicates Tape and Reel (13").

Tape and reel (13") standard pack 2500.

L86Z indicates Tube.

D84Z indicates Tape and Reel (7").

Tape and reel (7") standard pack 500.

## TO-236AB (SOT-23)

No suffix indicates Tape and Reel.

Tape and reel (7") standard pack 3000.

## Thru Hole Devices

### DO-35, DO-7, and DO-41

No suffix indicates bulk packaging.

#### Standard Packaging Options:

T50R indicates tape and reel with 50mm tape spacing.

T50A indicates tape and ammo with 50mm tape spacing.

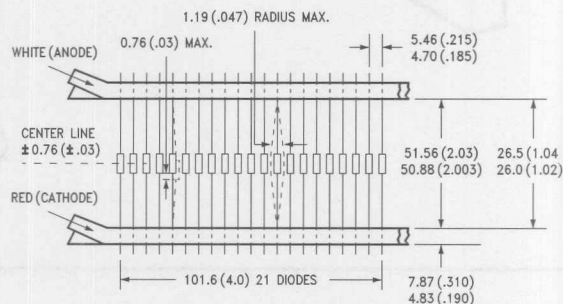
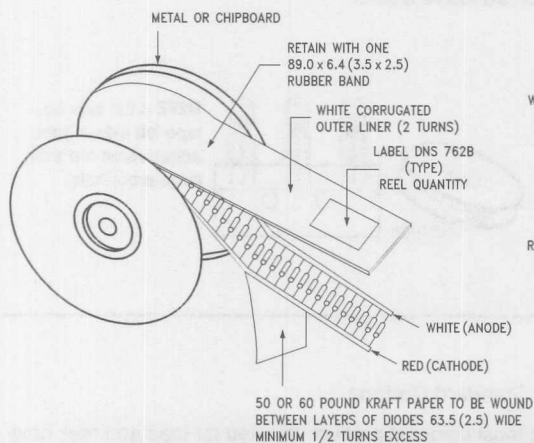
#### Non-Standard Packaging Options:

T26R indicates tape and reel with 26mm tape spacing.

T26A indicates tape and ammo with 26mm tape spacing.

Minimum Order Quantity (Package Size)

	Bulk	Tape and Reel	Tape and Ammo
DO-35	20K (5K)	20K (10K)	20K (5K)
DO-35 Zener	20K (5K)	20K (5K)	20K (5K)
DO-7	6K (6K)	6K (6K)	6K (6K)
DO-41	12K (3K)	12K (3K)	12K (3K)



## Ordering information for TO-92 Transistors

No suffix indicates bulk packaging.

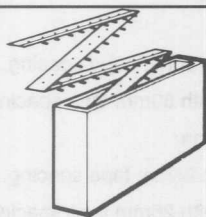
Standard Packaging Options:

1. D74Z and D75Z indicate Tape & Ammo box package.

Example: 2N3904/D74Z. Quantities are 2,000.

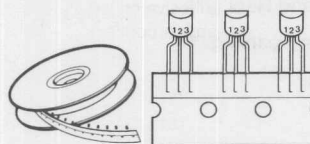
2. D26Z and D27Z indicate Tape & Reel package.

Example: 2N3904/D26Z. Quantities are 2,000.

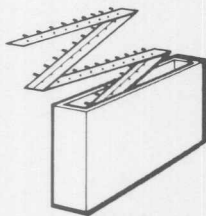


### D75Z Radial Ammo Pack

Ammo Pack equivalent to options D26Z, D28Z, D10Z, D11Z. Specific option dependent on feed orientation from the cartridge. Round side of transistor on adhesive side of tape.

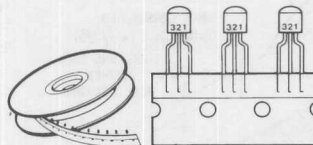


D26Z = flat side down, tape left side of reel, adhesive on top side, large arbor hole.



### D74Z Radial Ammo Pack

Ammo Pack equivalent to options D27Z, D29Z, D89Z, D81Z. Specific option dependent on feed orientation from the cartridge. Flat side of transistor on adhesive side of tape.



D27Z = flat side up, tape left side of reel, adhesive on top side, large arbor hole.

Figure 1. Transistor Standard Options

The drawings show package TO-92 transistors, which is the most common product selected for tape and reel; however, the same information applies to other package styles, such as TO-237 and tall TO-92.

## Ordering Information / Packaging Options (continued)

## 3. Non-Standard Packaging Options

D28Z, D29Z, D10Z, D11Z, D81Z, & D89Z indicates Tape & Reel package which can be replaced by the standard options D74Z or D75Z. Reel quantities are 2,000.

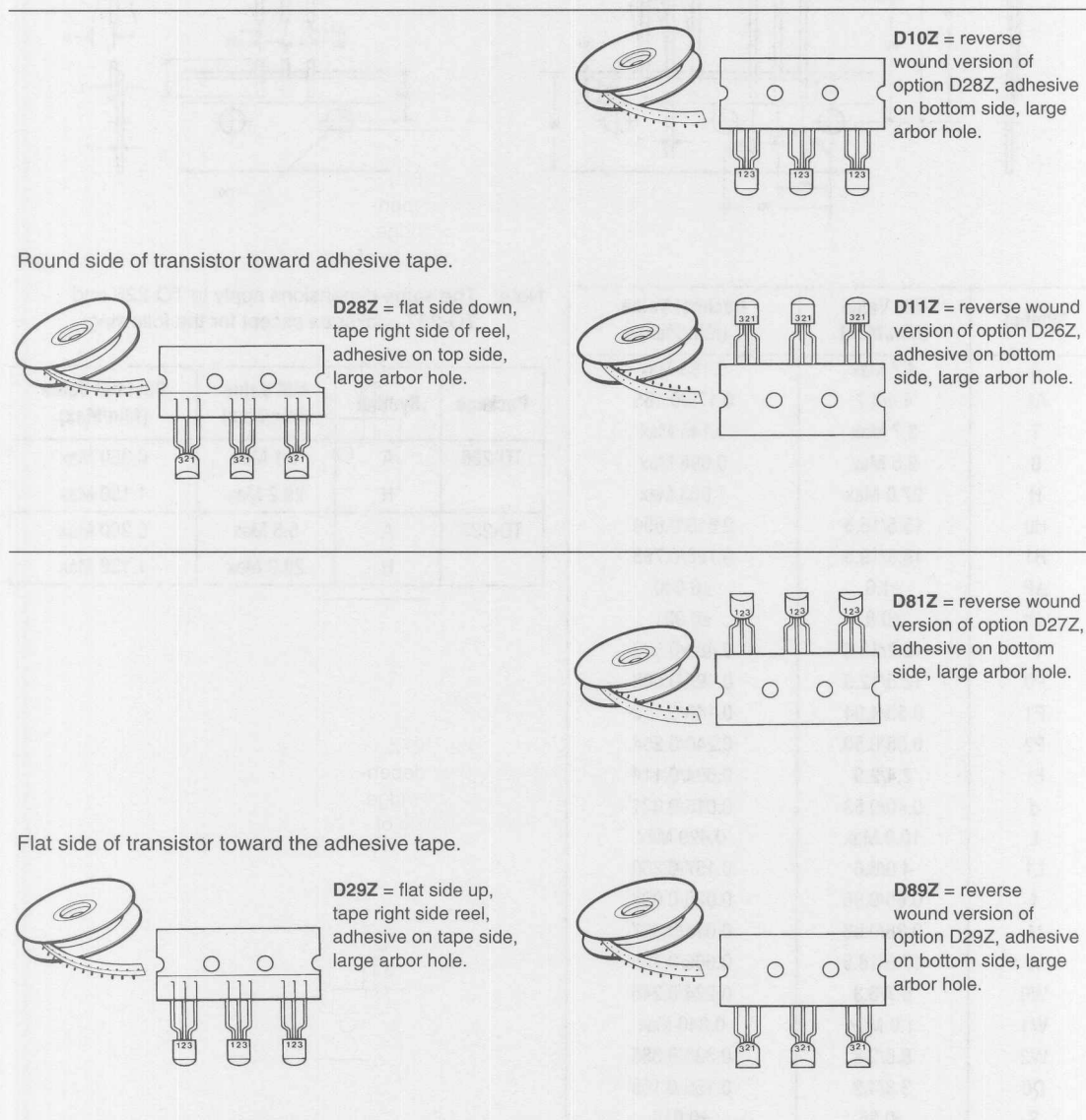
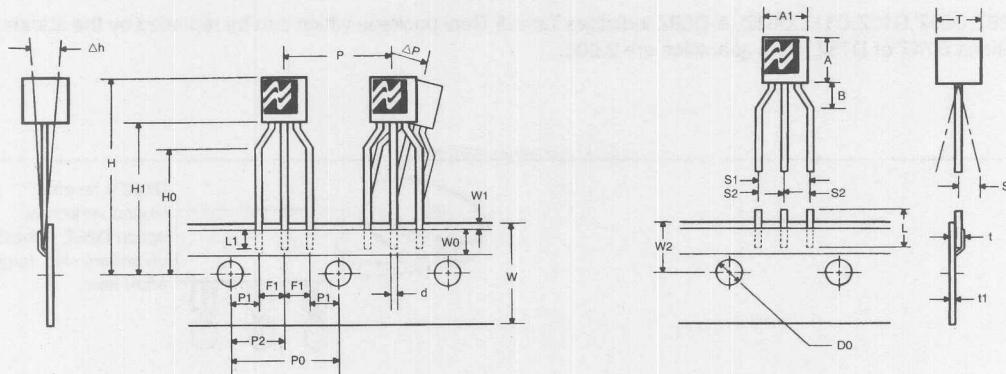


Figure 2. Transistor Non-Standard Options

These non-standard options require special handling and re-reeling. This is reflected in longer leadtime and increased cost. National Semiconductor does not recommend these reeling options.



## Ordering Information / Packaging Options (continued)



Note: The same dimensions apply to TO-226 and TO-237 packages except for the following:

Symbol	MM Value (Min/Max)	Decimal Value (Min/Max)
A	4.7 Max	0.185 Max
A1	4.4/4.7	0.175/0.185
T	3.7 Max	0.145 Max
B	2.5 Max	0.098 Max
H	27.0 Max	1.063 Max
H0	15.5/16.5	0.610/0.650
H1	18.5/19.5	0.728/0.768
ΔP	±1.0	±0.040
Δh	±0.8	±0.031
P	12.2/13.2	0.480/0.520
P0	12.5/12.9	0.492/0.508
P1	3.55/4.04	0.140/0.159
P2	6.05/6.50	0.240/0.254
F1	2.4/2.9	0.094/0.114
d	0.40/0.53	0.016/0.021
L	10.9 Max	0.429 Max
L1	4.0/6.6	0.157/0.260
t	0.66/0.96	0.026/0.038
t1	0.38/0.68	0.015/0.027
W	17.5/18.5	0.689/0.728
W0	5.7/6.3	0.224/0.248
W1	1.0 Max	0.040 Max
W2	8.5/9.8	0.335/0.385
D0	3.8/4.2	0.150/0.165
S	±0.25	±0.010
S1	4.69/5.28	0.185/0.208
S2	2.36/2.62	0.093/0.103

Package	Symbol	MM Value (Min/Max)	Decimal Value (Min/Max)
TO-226	A	9.1 Max	0.360 Max
	H	29.2 Max	1.150 Max
TO-237	A	6.6 Max	0.260 Max
	H	28.9 Max	1.138 Max

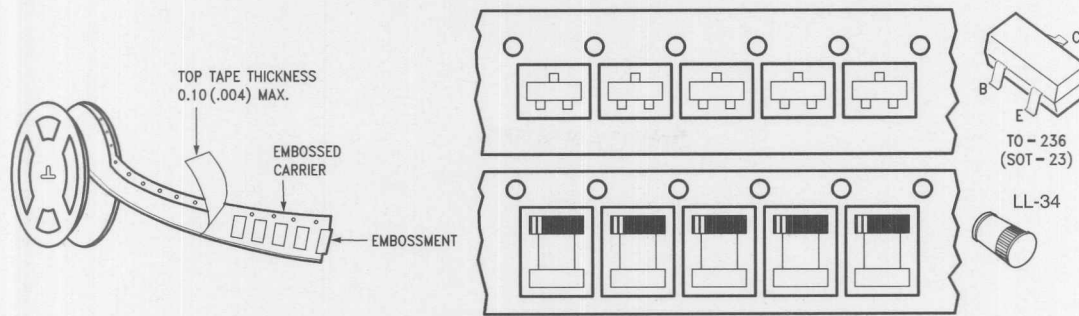


Figure 3. TO-236 and LL-34 Taping Specification

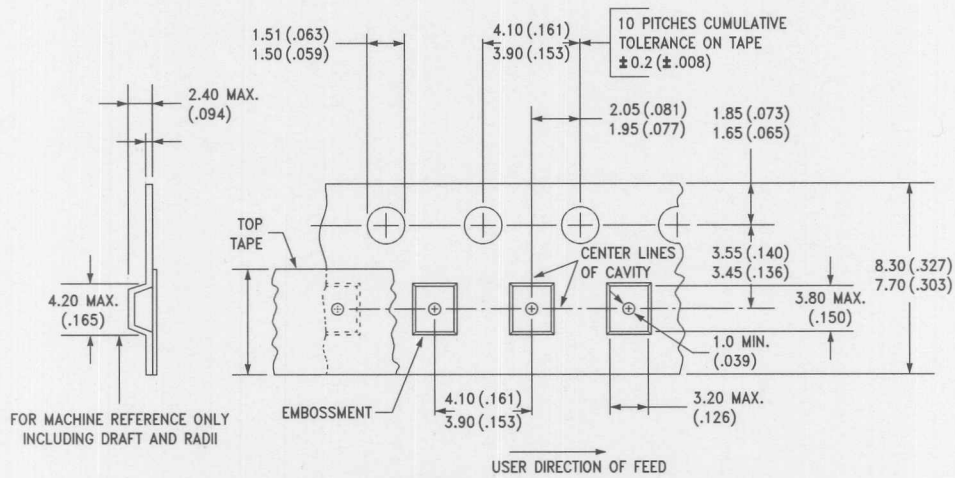


Figure 4. SOIC Taping Specification



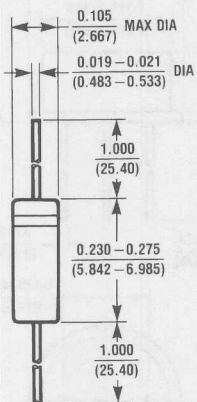
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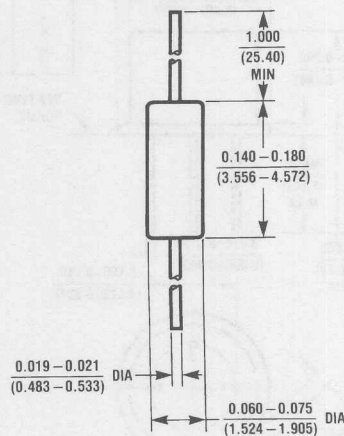


# Package Outlines

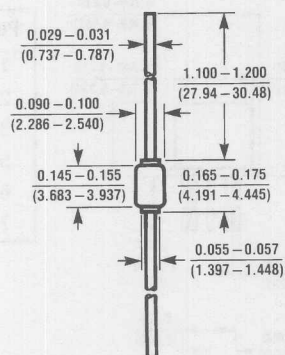
## DO-7 (D1)



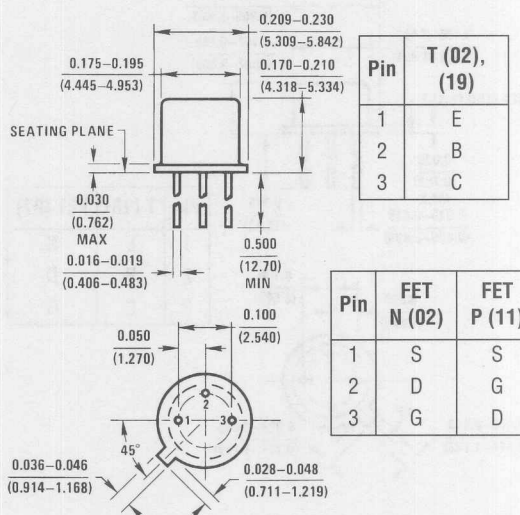
## DO-35 (D2)



## DO-41 (D4)

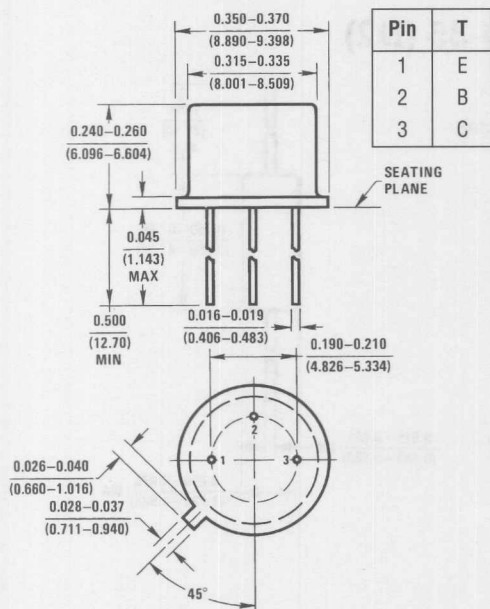


## TO-18 (02, 11, 19)

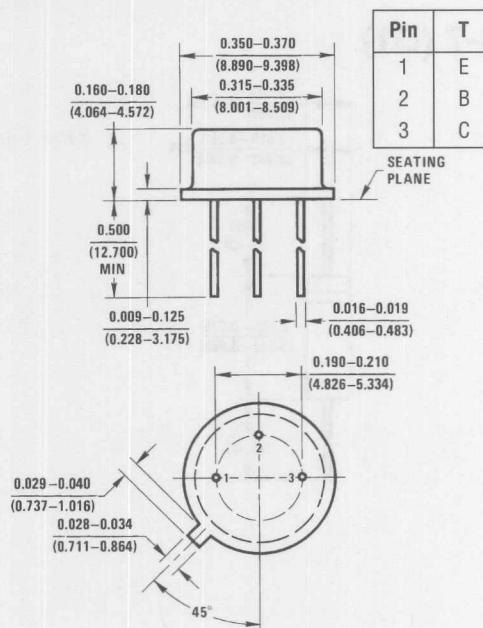


Package Outlines (continued)

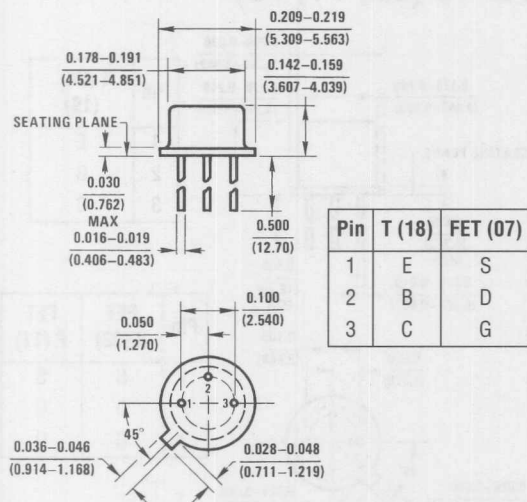
TO-39 (09, 10)



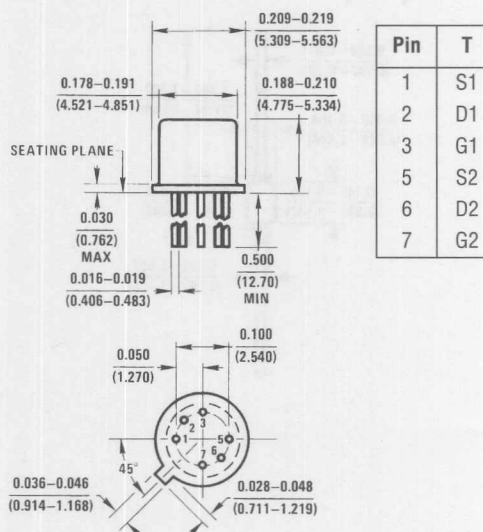
TO-39 (17) Lo-Profile



TO-52 (07, 18)

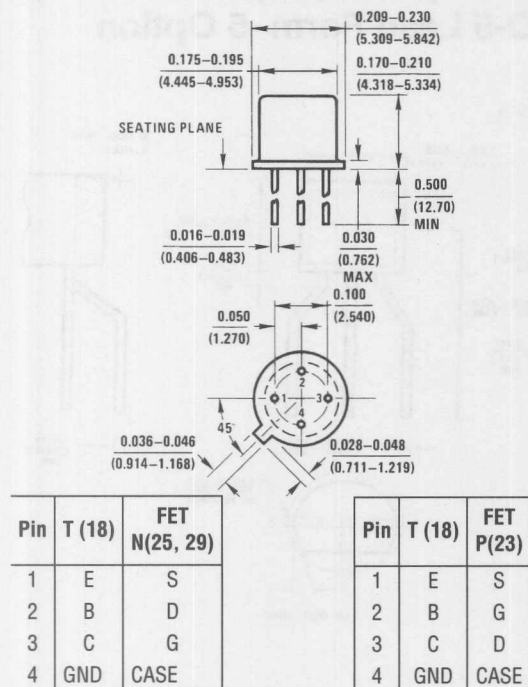


TO-71 (08, 12)

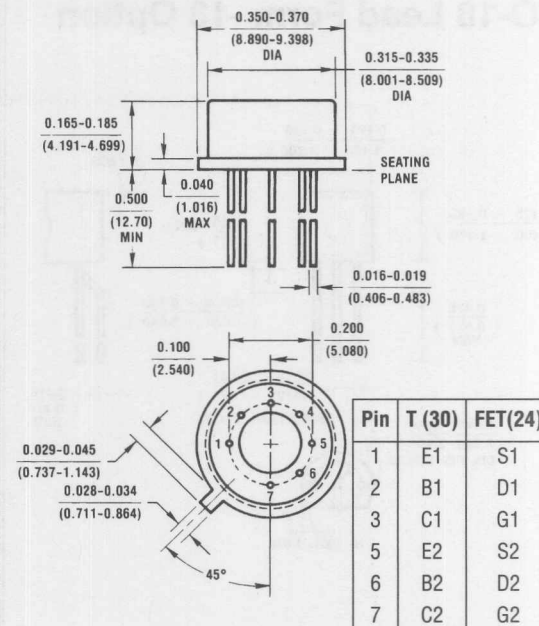


## Package Outlines (continued)

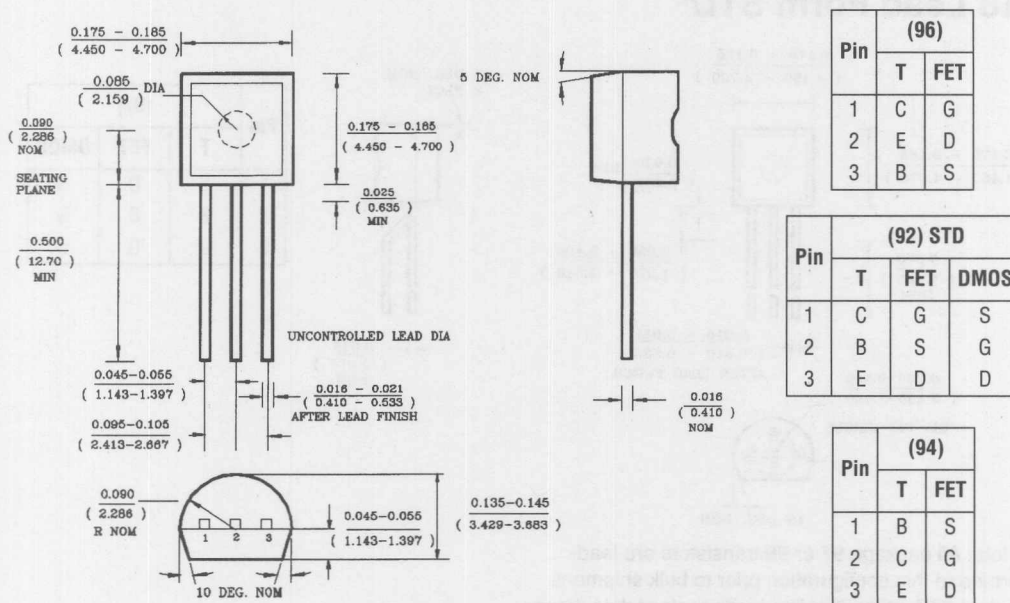
## TO-72 (23, 25, 28, 29)



## TO-78 (24, 30)



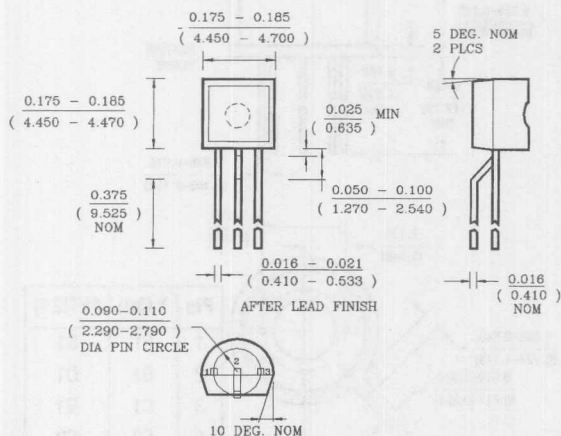
## TO-92 (92, 94, 96)



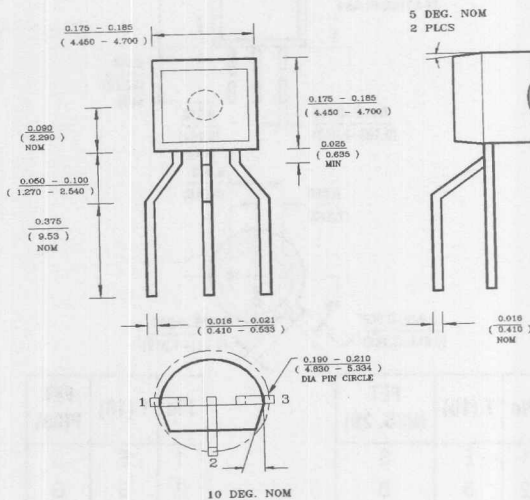


Package Outlines (continued)

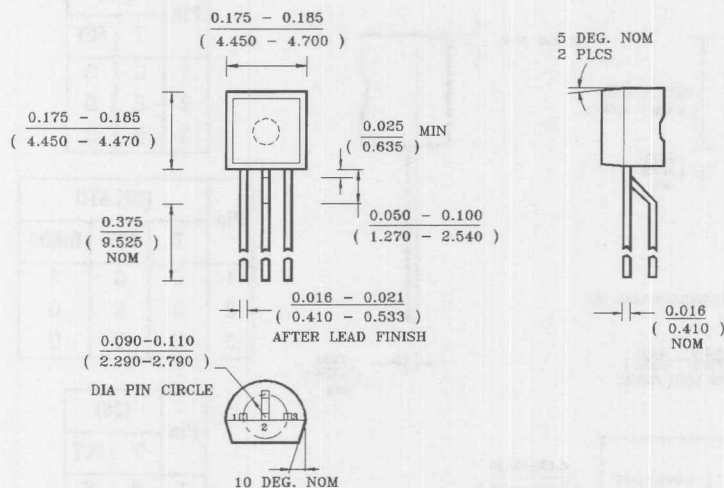
TO-92 (92, 94, 96)  
TO-18 Lead Form -18 Option



TO-92 (92, 94, 96)  
TO-5 Lead Form -5 Option



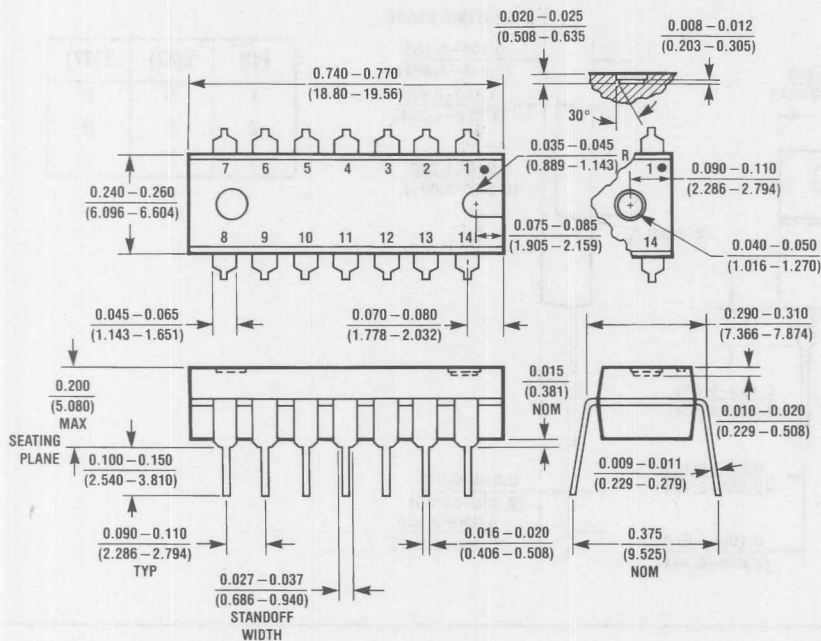
TO-92 (97)  
TO-18 Lead Form STD\*



Pin	(97)		
	T	FET	DMOS
1	E	D	S
2	B	S	G
3	C	G	D

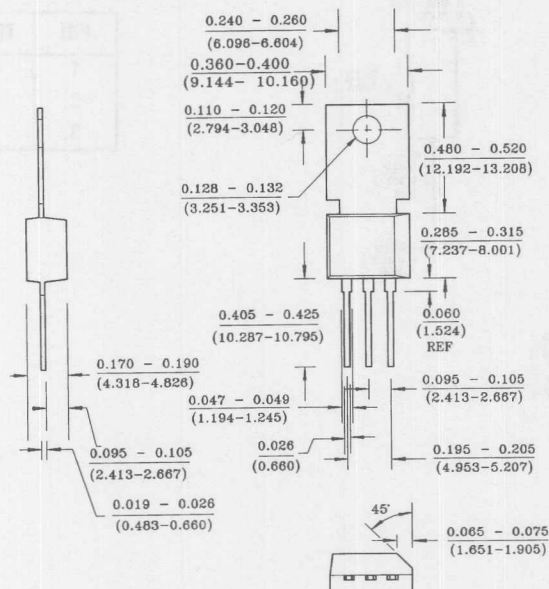
\*Note: All package 97 or 98 transistors are lead-formed to this configuration prior to bulk shipment. Order L34Z option if in-line leads preferred on these package codes.

TO-116 (01)



Pin	T	Pin	T
1	C1	8	C3
2	B1	9	B3
3	E1	10	E3
4	NC	11	NC
5	E2	12	E4
6	B2	13	B4
7	C2	14	C4

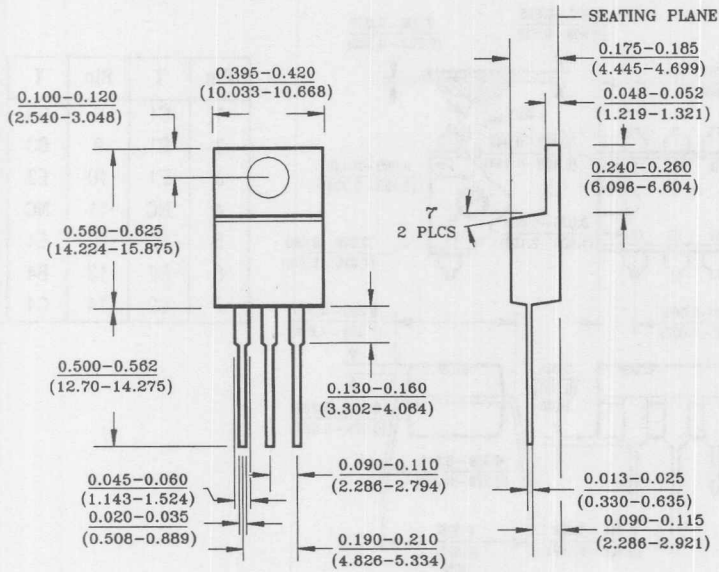
TO-202 (51, 55, 56)



Pin	T(51)	T(55)	T(56)
1	E	E	B
2	C	B	C
3	B	C	E

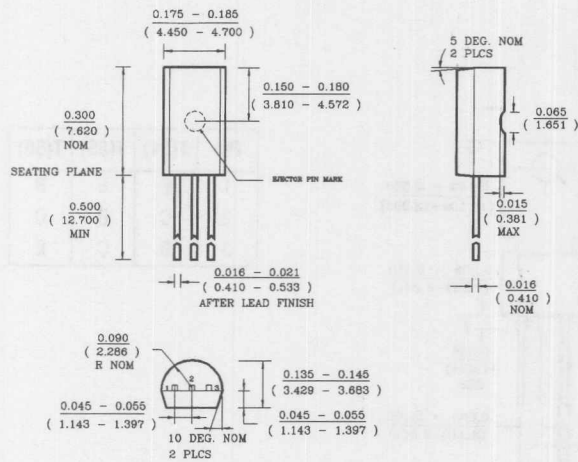
Package Outlines (continued)

TO-220 (37)



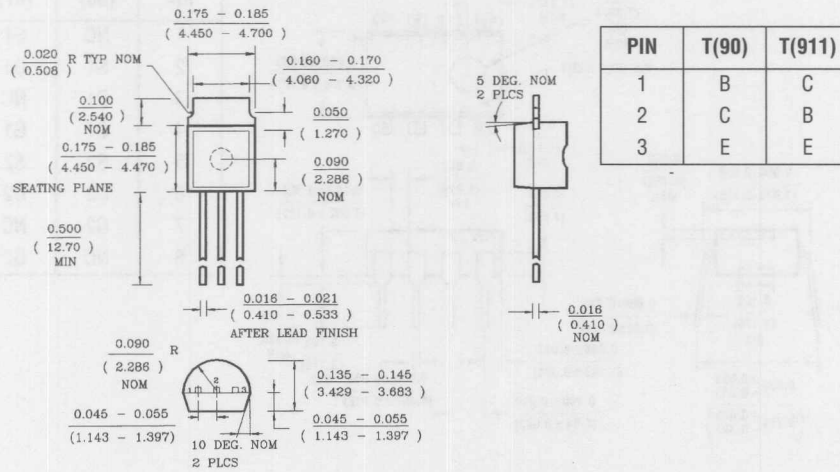
PIN	T(37)	F(37)
1	B	G
2	C	D
3	E	S

TO-226 (99)

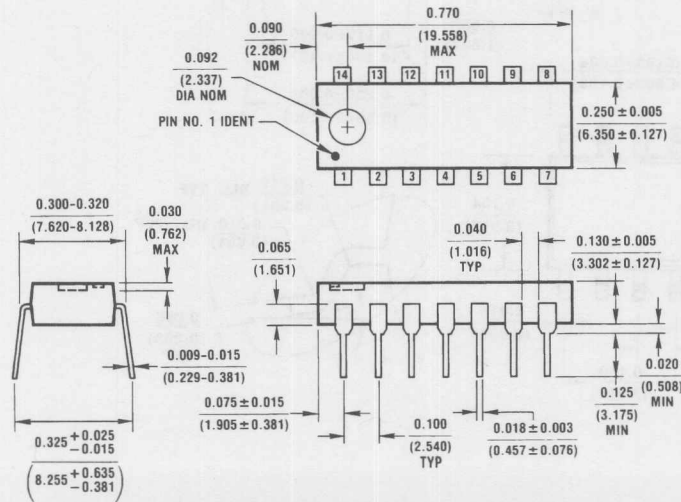


PIN	T(99)
1	C
2	B
3	E

TO-237 (90, 91)

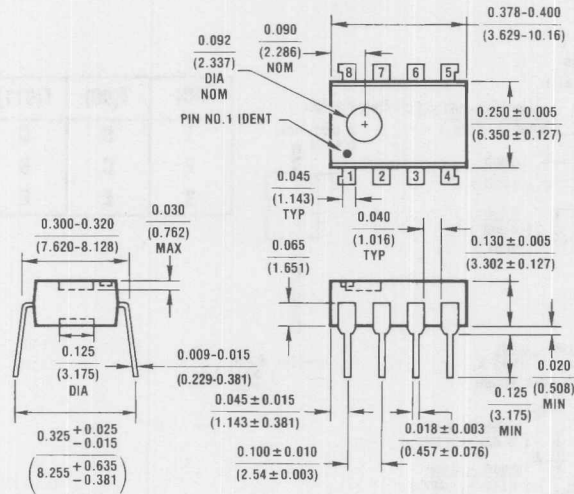


Molded Dual-in-Line Package (39)  
(Diode Arrays)



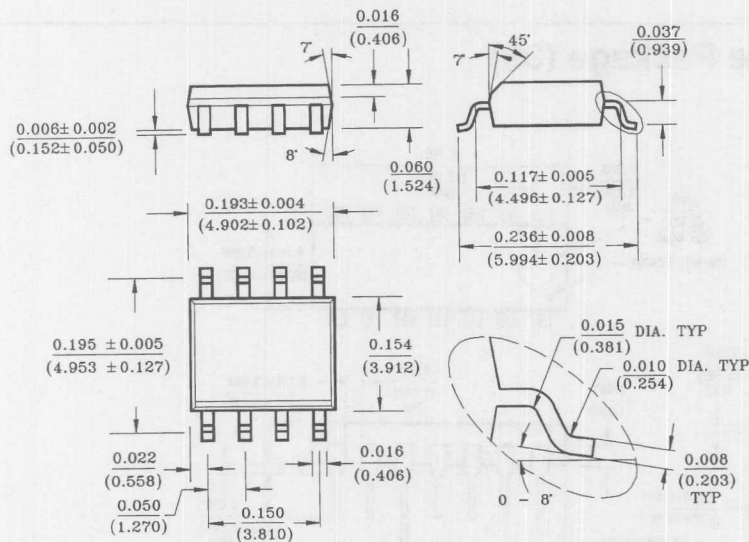
Package Outlines (continued)

Molded Mini-DIP (60, 67)

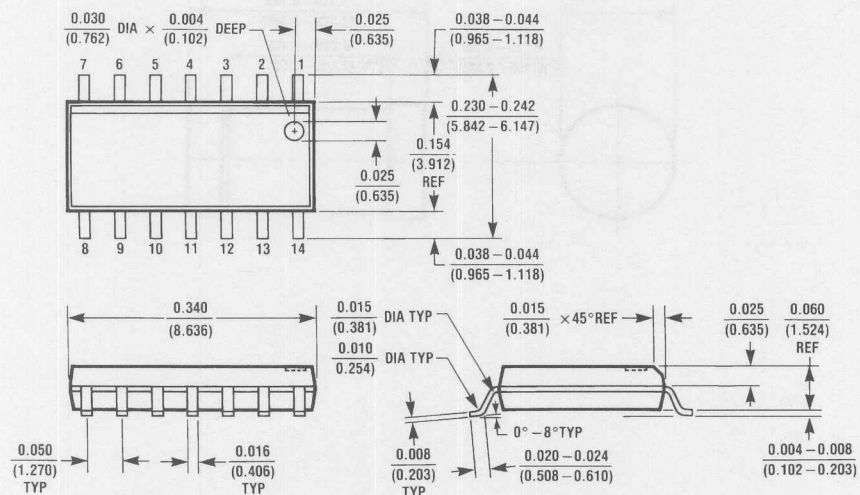
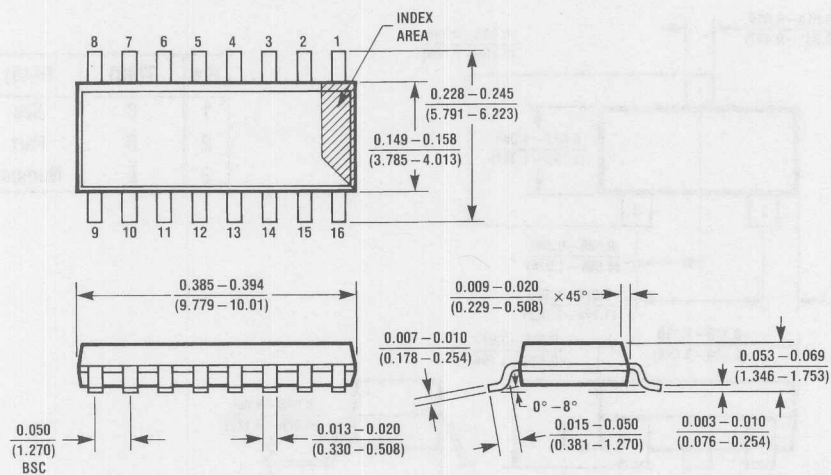


Pin	(60)	(67)
1	NC	S1
2	S1	D1
3	D1	NC
4	G1	G1
5	S2	S2
6	D2	D2
7	G2	NC
8	NC	G2

8-SOIC (S1)

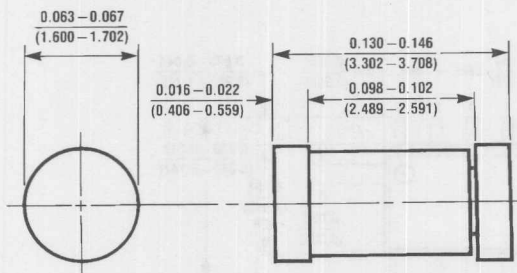


## Package Outlines (continued)

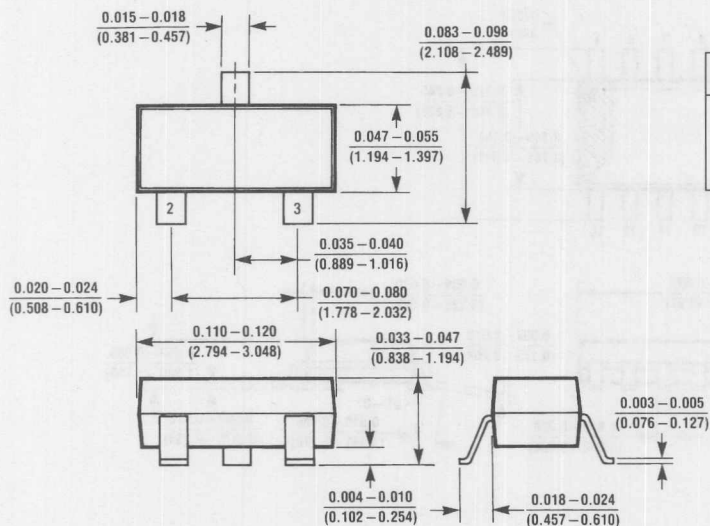
**14-SOIC (S2)  
(Diode Arrays)**

**16-SOIC (S3)**


Package Outlines (continued)

LL-34 (D3)



TO-236AA (48) (SOT-23)



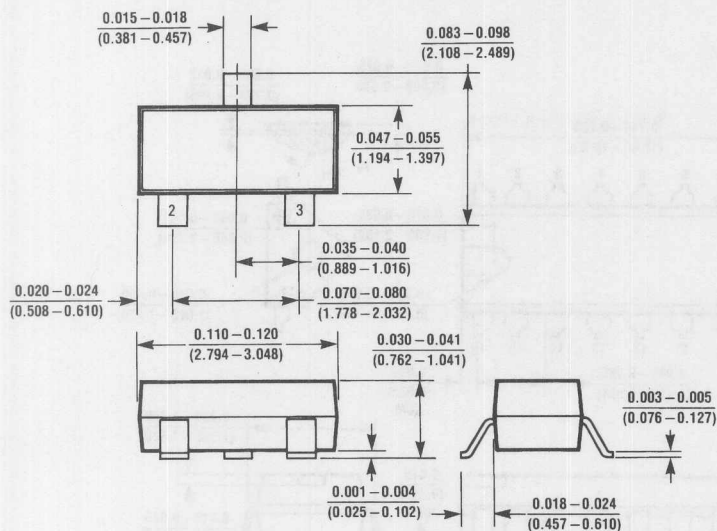
Pin	T(48)	D(48)	F(48)
1	C	See	G
2	B	Part	D
3	E	Number	S

10

Note 1: Meets all JEDEC dimensional requirements for TO-236AA.

Note 2: Controlling dimension: millimeters.

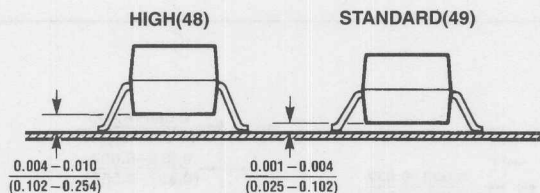
TO-236AB (49) (SOT-23)



Pin	T(49)	D(49)	F(49)
1	C	See	G
2	B	Part	D
3	E	Number	S

Note 1: Meets all JEDEC dimensional requirements for TO-236AB.

Note 2: Controlling dimension: millimeters.

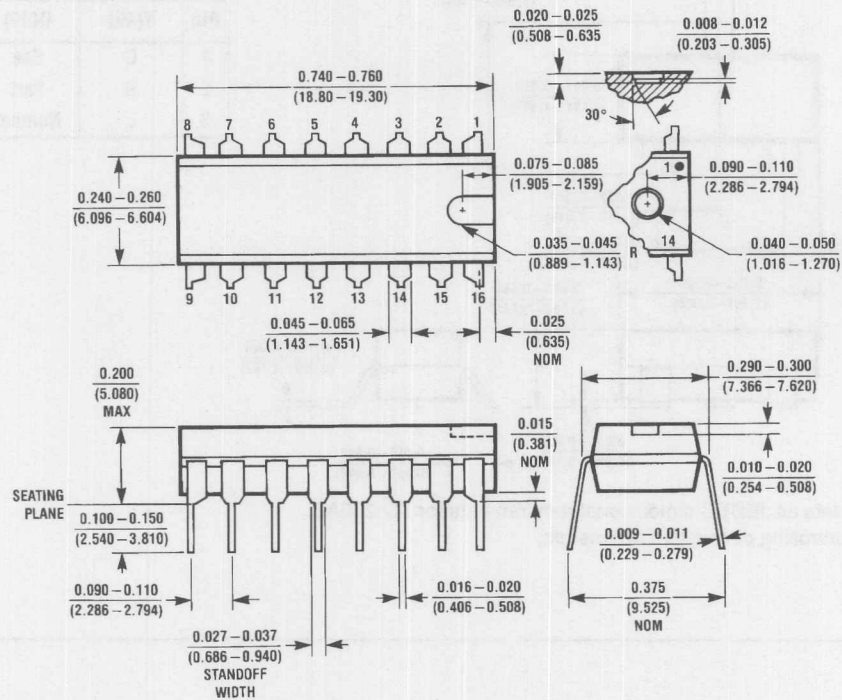


Note: Footprint is the same for standard and high profile packages.

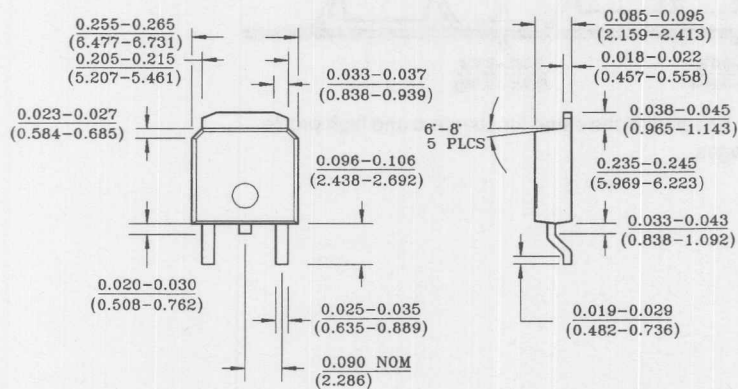


Package Outlines (continued)

16-Lead Plastic (03)  
(Diode Arrays)

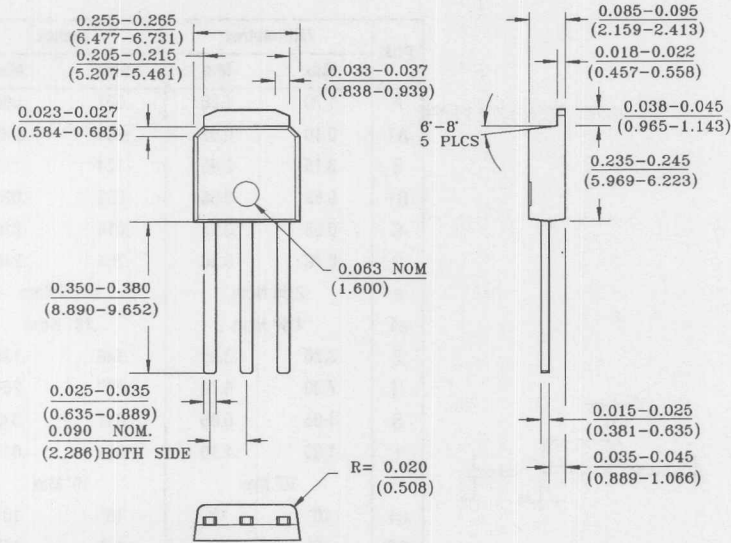


TO-252 (D-PAK)



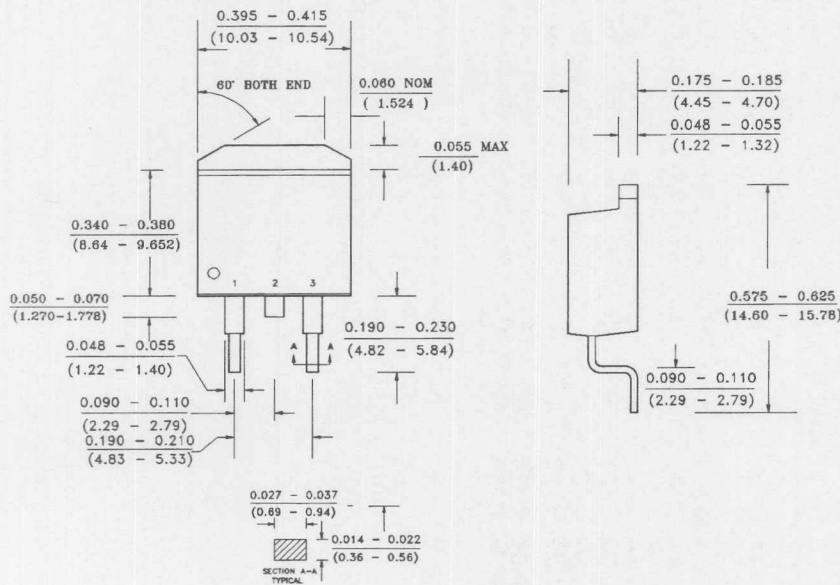
Pin	DMOS
1	G
2	D
3	S

TO-251 (I-PAK)



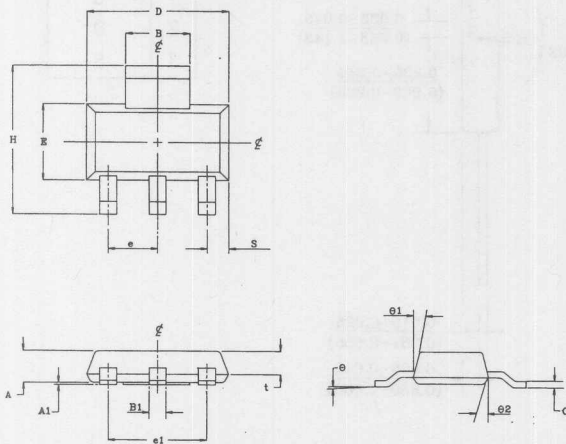
Pin	DMOS
1	G
2	D
3	S

TO-263AB



Pin	DMOS
1	G
2	D
3	S

SOT-223



POS	Millimetres		Inches	
	Max	Min	Max	Min
A	1.70	1.50	.067	.060
A1	0.10	0.02	.004	.0008
B	3.15	2.95	.124	.116
B1	0.85	0.65	.033	.026
C	0.35	0.25	.014	.010
D	6.70	6.30	.264	.248
e	2.30 Nom		.0905 Nom	
e1	4.60 Nom		.181 Nom	
E	3.70	3.30	.146	.130
H	7.30	6.70	.287	.264
S	1.05	0.85	.041	.033
t	1.30	1.10	.051	.043
$\theta$	10° Max		10° Max	
$\theta 1$	16°	10°	16°	10°
$\theta 2$	16°	10°	16°	10°

Notes:

- 1 Package outline exclusive of any mold flashes dimension.
- 2 Package outline exclusive of burr dimension.

# **ZCross-Reference of Devices**



# Cross-Reference of Devices

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N100	1N4447	1N143	1N4938	1N1774A	1N4743A
1N100A	1N4448	1N144	1N4454	1N1775A	1N4744A
1N101	1N3070	1N1451	1N1451	1N1776A	1N4745A
1N102	1N3070	1N1507A	1N4730A	1N1777A	1N4746A
1N103	1N4448	1N1508A	1N4732A	1N1778A	1N4747A
1N104	1N4448	1N1509A	1N4734A	1N1779A	1N4748A
1N108	1N4448	1N1510A	1N4736A	1N1780A	1N4749A
1N111	1N4148	1N1511A	1N4738A	1N1781A	1N4750A
1N112	1N4148	1N1512A	1N4740A	1N1782A	1N4751A
1N113	1N4454	1N1513A	1N4742A	1N1783A	1N4752A
1N114	1N4454	1N1514A	1N4744A	1N190	1N4148
1N115	1N4454	1N1515A	1N4746A	1N191	1N4148
1N116	1N4454	1N1516A	1N4748A	1N192	1N4148
1N116A	1N4454	1N1517A	1N4750A	1N194	1N4148
1N117	1N4454	1N1518A	1N4730A	1N194A	1N4148
1N1170	1N4148	1N1519A	1N4732A	1N195	1N4148
1N117A	1N4454	1N1520A	1N4734A	1N196	1N4148
1N118	1N4454	1N1521A	1N4736A	1N198	1N4148
1N118A	1N4448	1N1522A	1N4738A	1N198A	1N4148
1N119	1N4148	1N1523A	1N4740A	1N198B	1N4454
1N120	1N4148	1N1524A	1N4742A	1N198M	1N4148
1N126	1N4148	1N1525A	1N4744A	1N251	1N4148
1N126A	1N4148	1N1526A	1N4746A	1N251A	1N4148
1N127	1N3070	1N1527A	1N4748A	1N252	1N4148
1N127A	1N3070	1N1528A	1N4750A	1N252A	1N4148
1N128	1N4148	1N1744A	1N4743A	1N265	1N4148
1N128A	1N4148	1N175	1N3070	1N266	1N4148
1N132	1N4148	1N1765A	1N4734A	1N267	1N4148
1N133	1N4148	1N1766A	1N4735A	1N268	1N4148
1N134	1N4454	1N1767A	1N4736A	1N270	FDH444
1N135	1N4148	1N1768A	1N4737A	1N273	1N4448
1N1374	1N5229B	1N1769A	1N4738A	1N276	1N4454
1N139	1N4148	1N1770A	1N4739A	1N277	1N3070
1N140	1N4448	1N1771A	1N4740A	1N277M	1N4448
1N141	1N4148	1N1772A	1N4741A	1N278	1N4446
1N142	1N4938	1N1773A	1N4742A	1N279	1N4448

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N281	1N4448	1N3028B	1N4748A	1N3180	1N3070
1N282	1N4448	1N3029B	1N4749A	1N3181	1N5237B
1N283	FDH444	1N303	1N458	1N3197	1N4148
1N287	1N4148	1N3030B	1N4750A	1N3203	1N4305
1N288	1N4148	1N3031B	1N4751A	1N3204	1N4305
1N289	1N4148	1N3032B	1N4752A	1N3206	1N4148
1N290	1N3070	1N303A	1N458A	1N3215	1N4152
1N291	1N3070	1N303B	1N458A	1N3223	1N3070
1N292	1N4448	1N304	1N4148	1N3225	1N4148
1N294	1N4148	1N3062	1N4305	1N3257	1N4448
1N294A	1N4148	1N3063	1N4305	1N3258	1N4448
1N295	1N4148	1N3064	1N3064	1N3298	FDH400
1N295A	1N4148	1N3065	1N4305	1N3298A	FDH400
1N295S	1N4148	1N3066	1N4305	1N330	1N456A
1N295S	1N4148	1N3067	1N4148	1N331	1N458
1N296	1N4148	1N3068	1N4148	1N34A	1N4454
1N297	1N4148	1N3069	1N4148	1N34AS	1N4148
1N297A	1N4148	1N307	1N4938	1N35	1N4454
1N298	1N4148	1N3070	1N3070	1N350	1N457
1N298A	1N4148	1N3071	1N3070	1N351	1N458A
1N299	1N4305	1N309	1N4148	1N3535	1N3070
1N300	1N457	1N3097	1N4305	1N3536	1N457
1N300A	1N457	1N310	1N4148	1N355	1N4148
1N301	1N457	1N3110	1N4305	1N3550	1N3070
1N3016B	1N4736A	1N312	1N4448	1N3559	FDH444
1N3017B	1N4737A	1N3121	1N4305	1N3564	1N4448
1N3018B	1N4738A	1N3122	1N4305	1N3567	1N4448
1N3019B	1N4739A	1N3123	1N4305	1N3568	1N4448
1N301A	1N457	1N3124	1N4151	1N3575	1N483B
1N301B	1N457	1N3125	1N4305	1N3576	1N483B
1N3020B	1N4740A	1N313	1N4148	1N3593	1N4148
1N3021B	1N4741A	1N314	1N4148	1N3594	FDH600
1N3022B	1N4742A	1N3144	1N4305	1N3595	1N3595
1N3023B	1N4743A	1N3145	1N4305	1N3596	1N4448
1N3024B	1N4744A	1N3146	1N4151	1N3597	1N3070
1N3025B	1N4745A	1N3147	1N4448	1N3598	1N4152
1N3026B	1N4746A	1N3160	1N4305	1N3599	1N4938
1N3027B	1N4747A	1N3179	1N3070	1N36	1N4148

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N3600	1N3600	1N38	1N4148	1N4154	1N4154
1N3601	1N4149	1N385	1N4148	1N4158B	1N4736A
1N3602	1N4151	1N386	1N4148	1N4159B	1N4737A
1N3603	1N4151	1N3864	1N458	1N4160B	1N4738A
1N3604	1N4151	1N3865	1N4148	1N4161B	1N4739A
1N3605	1N4152	1N387	1N4148	1N4162B	1N4740A
1N3606	1N4153	1N3872	FDH444	1N4163B	1N4741A
1N3607	1N4151	1N3873	FDH444	1N4164B	1N4742A
1N3608	1N4152	1N388	1N4148	1N4165B	1N4743A
1N3609	1N4153	1N389	1N4148	1N4166B	1N4744A
1N3625	1N3070	1N38A	1N3070	1N4167B	1N4745A
1N3638B	1N4744A	1N38B	1N3070	1N4168B	1N4746A
1N3653	FDH400	1N39	1N3070	1N4169B	1N4747A
1N3654	1N4448	1N390	1N4148	1N417	1N4448
1N3666	1N4305	1N391	1N4148	1N4170B	1N4748A
1N3668	1N4305	1N392	1N4148	1N4171B	1N4749A
1N3675B	1N4736A	1N393	1N3070	1N4172B	1N4750A
1N3676B	1N4737A	1N394	1N3070	1N4173B	1N4751A
1N3677B	1N4738A	1N3944	1N4305	1N418	1N4148
1N3678B	1N4739A	1N3952	1N3070	1N419	FDH444
1N3679B	1N4740A	1N3953	1N4148	1N42	1N3070
1N3680B	1N4741A	1N3954	1N4150	1N4244	1N4244
1N3681B	1N4742A	1N3956	1N4305	1N43	1N4148
1N3682B	1N4743A	1N3991	1N4305	1N4305	1N4305
1N3683B	1N4744A	1N39A	1N3070	1N431	1N3070
1N3684B	1N4745A	1N39B	1N3070	1N432	1N4148
1N3685B	1N4746A	1N40	1N4148	1N4323B	1N4736A
1N3686B	1N4747A	1N4008	1N4305	1N4324B	1N4737A
1N3687B	1N4748A	1N4043	1N4154	1N4325B	1N4738A
1N3688B	1N4749A	1N4086	FDH444	1N4326B	1N4739A
1N3689B	1N4750A	1N4088	1N4148	1N4327B	1N4740A
1N3690B	1N4751A	1N41	1N4454	1N4328B	1N4741A
1N3691B	1N4752A	1N4147	1N914	1N4329B	1N4742A
1N373	1N5227B	1N4148	1N4148	1N432A	1N4446
1N375	1N5230B	1N4149	1N4149	1N432B	1N4448
1N376	1N5223B	1N4150	1N4150	1N433	1N3070
1N377	1N4148	1N4152	1N4152	1N4330B	1N4743A
1N378	1N5238B	1N4153	1N4153	1N4331B	1N4744A



## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N4332B	1N4745A	1N4534	1N4153	1N4746A	1N4746A
1N4333B	1N4746A	1N4536	1N4154	1N4747A	1N4747A
1N4334B	1N4747A	1N4537	1N4151	1N4748A	1N4748A
1N4335B	1N4748A	1N454	FDH444	1N4749A	1N4749A
1N4336B	1N4749A	1N4548	1N4154	1N4750A	1N4750A
1N4337B	1N4750A	1N456	1N456A	1N4751A	1N4751A
1N4338B	1N4751A	1N456A	1N456A	1N4752A	1N4752A
1N4339B	1N4752A	1N457	1N457	1N478	1N4148
1N433A	1N3070	1N457A	1N457A	1N479	1N4148
1N433B	1N3070	1N457M	1N457	1N48	1N4454
1N434	1N3070	1N458	1N458A	1N480	1N4148
1N434A	1N3070	1N458A	1N458A	1N483	1N483B
1N434B	1N3070	1N458M	1N458A	1N483A	1N483B
1N435	1N4148	1N459	1N459	1N483B	1N483B
1N4376	1N4376	1N459A	1N459A	1N483C	1N4148
1N44	1N3070	1N459M	1N459	1N485	1N485B
1N4443	1N4148	1N46	1N4454	1N485A	1N485B
1N4445	1N4151	1N4608	FDH400	1N485B	1N485B
1N4446	1N4446	1N4610	1N4150	1N485C	1N485B
1N4447	1N4447	1N47	1N3070	1N486B	1N486B
1N4448	1N4448	1N4728A	1N4728A	1N49	1N4148
1N4449	1N4448	1N4729A	1N4729A	1N490	1N4148
1N4454	1N4454	1N4730A	1N4730A	1N4938	1N4938
1N4455	1N4305	1N4731A	1N4731A	1N497	1N4448
1N4456	1N4150	1N4732A	1N4732A	1N498	1N4448
1N4457	1N4150	1N4733A	1N4733A	1N499	1N4448
1N447	1N4448	1N4734A	1N4734A	1N50	1N4148
1N448	1N4448	1N4735A	1N4735A	1N500	1N4448
1N45	1N4454	1N4736A	1N4736A	1N501	1N4448
1N450	1N4151	1N4737A	1N4737A	1N502	1N3070
1N4502	1N4305	1N4738A	1N4738A	1N51	1N4454
1N451	1N3070	1N4739A	1N4739A	1N52	1N4454
1N452	1N4448	1N4740A	1N4740A	1N520B	1N457
1N4523	1N4305	1N4741A	1N4741A	1N5223A	1N5223B
1N453	1N3070	1N4742A	1N4742A	1N5223B	1N5223B
1N4531	1N4148	1N4743A	1N4743A	1N5226A	1N5226B
1N4532	FDH600	1N4744A	1N4744A	1N5226B	1N5226B
1N4533	1N4152	1N4745A	1N4745A	1N5227A	1N5227B

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N5227B	1N5227B	1N5246B	1N5246B	1N5432	FD777
1N5228A	1N5228B	1N5247A	1N5247B	1N5449	1N485B
1N5228B	1N5228B	1N5247B	1N5247B	1N54A	1N4148
1N5229A	1N5229B	1N5248A	1N5248B	1N55	1N3070
1N5229B	1N5229B	1N5248B	1N5248B	1N5559B	1N4736A
1N5230A	1N5230B	1N5249A	1N5249B	1N5560B	1N4737A
1N5230B	1N5230B	1N5249B	1N5249B	1N5561B	1N4738A
1N5231A	1N5231B	1N5250A	1N5250B	1N5562B	1N4739A
1N5231B	1N5231B	1N5250B	1N5250B	1N5563B	1N4740A
1N5232A	1N5232B	1N5251A	1N5251B	1N5564B	1N4741A
1N5232B	1N5232B	1N5251B	1N5251B	1N5565B	1N4742A
1N5233A	1N5233B	1N5252A	1N5252B	1N5566B	1N4743A
1N5233B	1N5233B	1N5252B	1N5252B	1N5567B	1N4744A
1N5234A	1N5234B	1N5253A	1N5253B	1N5568B	1N4745A
1N5234B	1N5234B	1N5253B	1N5253B	1N5569B	1N4746A
1N5235A	1N5235B	1N5254A	1N5254B	1N5570B	1N4747A
1N5235B	1N5235B	1N5254B	1N5254B	1N5571B	1N4748A
1N5236A	1N5236B	1N5255A	1N5255B	1N5572B	1N4749A
1N5236B	1N5236B	1N5255B	1N5255B	1N5573B	1N4750A
1N5237A	1N5237B	1N5256A	1N5256B	1N5574B	1N4751A
1N5237B	1N5237B	1N5256B	1N5256B	1N5575B	1N4752A
1N5238A	1N5238B	1N5257A	1N5257B	1N55A	1N3070
1N5238B	1N5238B	1N5257B	1N5257B	1N55B	1N3070
1N5239A	1N5239B	1N527	1N4305	1N56	1N4148
1N5239B	1N5239B	1N5282	1N5282	1N566	1N3070
1N5240A	1N5240B	1N52A	1N4454	1N567	1N3070
1N5240B	1N5240B	1N5315	1N4153	1N568	1N4305
1N5241A	1N5241B	1N5316	1N4153	1N569	1N4305
1N5241B	1N5241B	1N5317	1N4150	1N56A	1N4148
1N5242A	1N5242B	1N5318	1N4150	1N57	1N4454
1N5242B	1N5242B	1N5319	1N4350	1N571	FDH444
1N5243A	1N5243B	1N54	1N4148	1N57A	1N4454
1N5243B	1N5243B	1N541	1N4305	1N58	1N3070
1N5244A	1N5244B	1N542	1N4305	1N58A	1N3070
1N5244B	1N5244B	1N5427	1N4148	1N5913B	1N4728A
1N5245A	1N5245B	1N5428	1N3070	1N5914B	1N4729A
1N5245B	1N5245B	1N5430	FDH400	1N5915B	1N4730A
1N5246A	1N5246B	1N5431	FDH400	1N5916B	1N4731A

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N5917B	1N4732A	1N5996B	1N5235B	1N619	1N4148
1N5918B	1N4733A	1N5997A	1N5236B	1N62	1N3070
1N5919B	1N4734A	1N5997B	1N5236B	1N622	1N4148
1N5920B	1N4735A	1N5998A	1N5237B	1N63	1N4148
1N5921B	1N4736A	1N5998B	1N5237B	1N631	1N4148
1N5922B	1N4737A	1N5999A	1N5239B	1N632	1N4148
1N5923B	1N4738A	1N5999B	1N5239B	1N633	1N3070
1N5924B	1N4739A	1N6000A	1N5240B	1N634	1N3070
1N5925B	1N4740A	1N6000B	1N5240B	1N635	1N3070
1N5926B	1N4741A	1N6001A	1N5241B	1N636	1N4448
1N5927B	1N4742A	1N6001B	1N5241B	1N63A	1N4148
1N5928B	1N4743A	1N6002A	1N5242B	1N64	1N4148
1N5929B	1N4744A	1N6002B	1N5242B	1N64A	1N4148
1N5930B	1N4745A	1N6003A	1N5243B	1N65	1N4454
1N5931B	1N4746A	1N6003B	1N5243B	1N66	1N4454
1N5932B	1N4747A	1N6004A	1N5245B	1N664	1N5237B
1N5933B	1N4748A	1N6004B	1N5245B	1N665	1N5242B
1N5934B	1N4749A	1N6005A	1N5246B	1N666	1N5245B
1N5935B	1N4750A	1N6005B	1N5246B	1N667	1N5248B
1N5936B	1N4751A	1N6006A	1N5248B	1N668	1N5251B
1N5937B	1N4752A	1N6006B	1N5248B	1N669	1N5245B
1N5988A	1N5226B	1N6007A	1N5250B	1N66A	1N4454
1N5988B	1N5226B	1N6007B	1N5250B	1N67	1N4148
1N5989A	1N5227B	1N6008A	1N5251B	1N67A	1N4148
1N5989B	1N5227B	1N6008B	1N5251B	1N68	1N3070
1N5990A	1N5228B	1N6009A	1N5252B	1N68A	1N3070
1N5990B	1N5228B	1N6009B	1N5252B	1N69	1N4454
1N5991A	1N5229B	1N6010A	1N5254B	1N695	1N4148
1N5991B	1N5229B	1N6010B	1N5254B	1N695A	1N4148
1N5992A	1N5230B	1N6011A	1N5256B	1N696	1N4148
1N5992B	1N5230B	1N6011B	1N5256B	1N698	1N4305
1N5993A	1N5231B	1N6012A	1N5257B	1N699	1N4448
1N5993B	1N5231B	1N6012B	1N5257B	1N69A	1N4454
1N5994A	1N5232B	1N6099	1N6099	1N70	1N3070
1N5994B	1N5232B	1N61	1N3070	1N703	1N5227B
1N5995A	1N5234B	1N616	1N4148	1N703A	1N5227B
1N5995B	1N5234B	1N617	1N4148	1N704	1N5229B
1N5996A	1N5235B	1N618	1N4148	1N704A	1N5229B

Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N705	1N5230B	1N723A	1N5252B	1N762A	1N5232B
1N705A	1N5230B	1N724	1N5254B	1N763A	1N5238B
1N706	1N5232B	1N724A	1N5254B	1N764A	1N5238B
1N706A	1N5232B	1N725	1N5256B	1N765A	1N5240B
1N707	1N5236B	1N725A	1N5256B	1N766A	1N5243B
1N707A	1N5236B	1N726	1N5257B	1N767A	1N5246B
1N708	1N5232B	1N726A	1N5257B	1N768A	1N5249B
1N708A	1N5232B	1N74	1N4148	1N769A	1N5252B
1N709	1N5234B	1N746	1N5226B	1N771	1N4448
1N709A	1N5234B	1N746A	1N5226B	1N771A	FDH444
1N70A	1N4148	1N747	1N5227B	1N772	1N4448
1N710	1N5235B	1N747A	1N5227B	1N772A	FDH444
1N710A	1N5235B	1N748	1N5228B	1N773	1N4448
1N711	1N5236B	1N748A	1N5228B	1N773A	FDH444
1N711A	1N5236B	1N749	1N5229B	1N774	1N4448
1N712	1N5237B	1N749A	1N5229B	1N774A	FDH444
1N712A	1N5237B	1N75	1N3070	1N775	1N4448
1N713	1N5239B	1N750	1N5230B	1N776	1N4448
1N713A	1N5239B	1N750A	1N5230B	1N777	1N4448
1N714	1N5240B	1N751	1N5231B	1N778	1N4148
1N714A	1N5240B	1N751A	1N5231B	1N779	1N3070
1N715	1N5241B	1N752	1N5233B	1N781	1N4305
1N715A	1N5241B	1N752A	1N5233B	1N781A	1N4305
1N716	1N5242B	1N753	1N5234B	1N788	1N4448
1N716A	1N5242B	1N753A	1N5234B	1N789	1N4148
1N717	1N5243B	1N754	1N5235B	1N789M	1N4148
1N717A	1N5243B	1N754A	1N5235B	1N790	1N4148
1N718	1N5245B	1N755	1N5236B	1N790M	1N4148
1N718A	1N5245B	1N755A	1N5236B	1N791	1N4448
1N719	1N5246B	1N756	1N5237B	1N791M	1N4448
1N719A	1N5246B	1N756A	1N5237B	1N792	1N4448
1N720	1N5248B	1N757	1N5239B	1N792M	1N4448
1N720A	1N5248B	1N757A	1N5239B	1N793	1N4148
1N721	1N5250B	1N758	1N5240B	1N793M	1N4148
1N721A	1N5250B	1N758A	1N5240B	1N794	1N4148
1N722	1N5251B	1N759	1N5242B	1N795	1N4448
1N722A	1N5251B	1N759A	1N5242B	1N796	1N4448
1N723	1N5252B	1N761A	1N5230B	1N797	1N3070

1N796	1N3070	1N877	1N3070	1N907M	1N4149
1N799	1N3070	1N845	1N3070	1N908	1N3070
1N800	1N3070	1N86	1N4148	1N908A	1N4447
1N801	1N3070	1N87	1N4148	1N908AM	1N4447
1N802	1N3070	1N87A	1N4148	1N908M	1N4149
1N803	1N3070	1N87S	1N4148	1N909	1N4448
1N804	1N3070	1N87T	1N4148	1N910	1N4448
1N805	1N4148	1N88	1N3070	1N911	1N4448
1N806	1N4148	1N89	1N4454	1N914	1N914
1N807	1N3070	1N890	1N4447	1N914A	1N914A
1N808	1N4448	1N891	1N4448	1N914B	1N914B
1N809	1N3070	1N892	1N4448	1N914M	1N914
1N81	1N4148	1N893	1N3070	1N915	1N914B
1N810	1N4148	1N897	1N4148	1N916	1N916
1N811	1N4148	1N898	1N4448	1N916A	1N916A
1N811M	1N4148	1N899	1N3070	1N916B	1N916B
1N812	1N4149	1N90	1N4454	1N918	1N914
1N812M	1N4149	1N900	1N3070	1N919	1N3070
1N813	1N4148	1N901	1N3070	1N920	FDH400
1N813M	1N4148	1N902	1N3070	1N921	FDH400
1N814	1N4148	1N903	1N4148	1N922	FDH400
1N814M	1N4148	1N903A	1N4154	1N923	FDH400
1N815	1N4448	1N903AM	1N4154	1N924	1N483B
1N815M	1N4448	1N903M	1N4154	1N925	1N4148
1N817	1N3070	1N904	1N4154	1N926	1N4148
1N818	1N4148	1N904A	1N4154	1N927	1N4148
1N818A	1N4148	1N904AM	1N4154	1N928	1N3070
1N835	1N4305	1N904M	1N4154	1N930	1N4446
1N837	FDH444	1N905	1N4154	1N931	1N3070
1N837A	FDH444	1N905A	1N4154	1N932	1N3070
1N838	1N3070	1N905AM	1N4154	1N933	1N3070
1N839	1N3070	1N905M	1N4154	1N934	1N3070
1N84	1N4148	1N906	1N4149	1N948	1N4448
1N840	FDH444	1N906A	1N4447	1N949	1N4305
1N840M	1N3070	1N906AM	1N4447	1N95	1N4148
1N841	1N3070	1N906M	1N4447	1N957	1N957B
1N842	1N3070	1N907	1N4149	1N957A	1N957B
1N843	1N3070	1N907A	1N4448		

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
1N957B	1N957B	1N96A	1N4148	2N1269	2N2369A
1N958	1N958B	1N97	1N4448	2N1270	2N2369A
1N958A	1N958B	1N970	1N970B	2N1271	2N2369A
1N958B	1N958B	1N970A	1N970B	2N1272	2N2369A
1N959	1N959B	1N970B	1N970B	2N1335	2N2219A
1N959A	1N959B	1N971	1N971B	2N1336	2N2219A
1N959B	1N959B	1N971A	1N971B	2N1337	2N2219A
1N96	1N4447	1N971B	1N971B	2N1338	2N2219A
1N960	1N960B	1N972	1N972B	2N1339	2N3019
1N960A	1N960B	1N972A	1N972B	2N1340	2N3019
1N960B	1N960B	1N972B	1N972B	2N1341	2N3019
1N961	1N961B	1N973	1N973B	2N1342	2N3019
1N961A	1N961B	1N973A	1N973B	2N1369	2N2907
1N961B	1N961B	1N973B	1N973B	2N1386	2N2222
1N962	1N962B	1N97A	1N4447	2N1387	2N2222
1N962A	1N962B	1N98	1N4454	2N1388	2N2222
1N962B	1N962B	1N98A	1N4448	2N1389	2N2222
1N963	1N963B	1N99	1N4148	2N1390	2N2222
1N963A	1N963B	1N993	1N4447	2N1439	2N2907A
1N963B	1N963B	1N994	1N4151	2N1440	2N2907A
1N964	1N964B	1N995	1N4305	2N1441	2N2907A
1N964A	1N964B	1N997	1N4148	2N1442	2N2907A
1N964B	1N964B	1N999	1N914	2N1443	2N2907A
1N965	1N965B	1N99A	1N4454	2N1474	2N2907A
1N965A	1N965B	1S920	1S920	2N1474A	2N2907A
1N965B	1N965B	1S921	1S921	2N1475	2N2907A
1N966	1N966B	1S922	1S922	2N1491	2N2219A
1N966A	1N966B	1S923	1S923	2N1492	2N2219A
1N966B	1N966B	2N1051	2N2219A	2N1505	2N2219A
1N967	1N967B	2N1074	2N2219A	2N1506	2N2219A
1N967A	1N967B	2N1075	2N2219A	2N1506A	2N2219A
1N967B	1N967B	2N1076	2N2219A	2N1507	2N2219A
1N968	1N968B	2N1077	2N2219A	2N1508	2N3019
1N968A	1N968B	2N1105	2N3019	2N1509	2N3019
1N968B	1N968B	2N1117	2N3019	2N1528	2N2219A
1N969	1N969B	2N1206	2N3019	2N1564	2N3019
1N969A	1N969B	2N1267	2N2369A	2N1565	2N3019
1N969B	1N969B	2N1268	2N2369A	2N1566	2N3019

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2N1566A	2N3019	2N2107	2N3019	2N2364	2N3019
2N1572	2N3019	2N2108	2N3019	2N2364A	2N3019
2N1573	2N3019	2N2193	2N3019	2N2369	2N2369
2N1574	2N3019	2N2193A	2N3019	2N2369A	2N2369A
2N1613	2N2219A	2N2194	2N2219A	2N2380	2N2219A
2N1613B	2N3019	2N2194A	2N2219A	2N2380A	2N2219A
2N1623	2N2907	2N2194B	2N2219A	2N2389	2N2219A
2N1704	2N2219A	2N2195	2N2219A	2N2395	2N2219A
2N1711	2N2219A	2N2195B	2N2219A	2N2396	2N2219A
2N1711A	2N2219A	2N2198	2N3019	2N2397	2N2219A
2N1711B	2N2219A	2N2206	2N2369A	2N2405	2N2405
2N1764	2N2369A	2N2217	2N2219A	2N2433	2N2219A
2N1837	2N2219A	2N2218	2N2219A	2N2435	2N3019
2N1837A	2N2219A	2N2218A	2N2219A	2N2436	2N3019
2N1837B	2N2219A	2N2219	2N2219A	2N2437	2N3019
2N1838	2N2219A	2N2219A	2N2219A	2N2438	2N3019
2N1840	2N2219A	2N2220	2N2222	2N2439	2N3019
2N1890	2N3019	2N2221	2N2222	2N2440	2N3019
2N1893	2N3019	2N2221A	2N2222A	2N2475	2N2369A
2N1923	2N3019	2N2222	2N2222	2N2478	2N2219A
2N1941	2N2219A	2N2222A	2N2222A	2N2479	2N2219A
2N1943	2N2219A	2N2222B	2N2222A	2N2484	2N2484
2N1944	2N2219A	2N2236	2N2219A	2N2484	2N2484
2N1945	2N2219A	2N2237	2N2219A	2N2486	2N2484
2N1946	2N2219A	2N2240	2N2219A	2N2601	2N2907A
2N1953	2N2219A	2N2241	2N2219A	2N2602	2N2907A
2N1990	2N3019	2N2243	2N3019	2N2603	2N2907A
2N2017	2N3019	2N2243A	2N3019	2N2608	2N2608
2N2033	2N3019	2N2270	2N2270	2N2695	2N2907
2N2038	2N3053	2N2272	2N2222	2N2709	2N2907
2N2039	2N3019	2N2297	2N2219A	2N2711	2N2925
2N2040	2N3053	2N2309	2N2219A	2N2712	2N2925
2N2041	2N3019	2N2310	2N3019	2N2713	2N2925
2N2049	2N2219A	2N2312	2N3019	2N2714	2N2925
2N2086	2N3019	2N2316	2N3019	2N2787	2N2219A
2N2087	2N3019	2N2317	2N2219A	2N2788	2N2219A
2N2102	2N3019	2N2350	2N2222A	2N2789	2N2219A
2N2106	2N3019	2N2350A	2N2222A	2N2792	2N2222A

Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2N2837	2N2907A	2N3116	2N2222A	2N3415	2N3415
2N2863	2N2219A	2N3117	2N3117	2N3416	2N3416
2N2864	2N2219A	2N3119	2N3019	2N3417	2N3417
2N2886	2N2219A	2N3122	2N2219A	2N3436	2N3822
2N2904	2N2904	2N3123	2N2219A	2N3437	2N3684
2N2904A	2N2904A	2N3133	2N2907	2N3438	2N4339
2N2905	2N2905	2N3134	2N2907	2N3439	2N3440
2N2905A	2N2905A	2N3135	2N2907	2N3440	2N3440
2N2906	2N2907	2N3136	2N2907	2N3451	2N4208
2N2906A	2N2907A	2N3227	2N2369	2N3458	2N3822
2N2907	2N2907	2N3241	2N2222	2N3459	2N4340
2N2907A	2N2907A	2N3242	2N2222	2N3460	2N4339
2N2926	2N2925	2N3244	2N3467	2N3464	2N2219A
2N2938	2N2369A	2N3246	2N2484	2N3467	2N3467
2N2939	2N3019	2N3247	2N2484	2N3468	2N3467
2N2940	2N3019	2N3248	PN3640	2N3485	2N2907
2N2951	2N2219A	2N3249	PN3640	2N3485A	2N2907A
2N2959	2N2219A	2N3250	2N2907	2N3486	2N2907A
2N2960	2N2219A	2N3250A	2N2907A	2N3486A	2N2907
2N2961	2N2219A	2N3299	2N2219A	2N3503	2N2905A
2N3011	2N2369	2N3301	2N2222A	2N3505	2N2907A
2N3012	2N2369	2N3302	2N2222A	2N3508	2N2369A
2N3014	2N2369	2N3330	2N2608	2N3509	2N2369A
2N3019	2N3019	2N3331	2N2608	2N3545	2N2907A
2N3020	2N3019	2N3341	2N2907A	2N3546	2N4208
2N3053	2N3053	2N3350	2N2907A	2N3548	2N3962
2N3053A	2N3019	2N3351	2N2907A	2N3549	2N3962
2N3056	2N3019	2N3352	2N2907A	2N3563	PN3563
2N3057	2N3019	2N3374	2N3019	2N3566	PN3566
2N3057A	2N3019	2N3391A	2N3391A	2N3567	PN3567
2N3073	2N2907A	2N3392	2N3392	2N3569	PN3569
2N3077	2N2484	2N3393	2N3393	2N3576	2N4209
2N3081	2N3019	2N3394	2N3393	2N3605	PN2369
2N3095	2N2907A	2N3395	2N3392	2N3605A	PN2369
2N3107	2N3019	2N3396	2N3392	2N3606	PN2369
2N3108	2N3019	2N3397	2N3393	2N3606A	PN2369A
2N3109	2N3019	2N3398	2N3393	2N3607	PN2369A
2N3115	2N2222A	2N3402	2N3393	2N3638	PN3638



## Cross-Reference of Devices (continued)

2N3640	PN3640	2N3855	2N3903	2N4036	2N4036
2N3641	PN3642	2N3855A	2N3903	2N4037	2N4037
2N3642	PN3642	2N3856	2N3904	2N4062	MPS6518
2N3643	2N4401	2N3856	2N3904	2N4086	MPS6514
2N3644	PN3644	2N3858A	2N5550	2N4087	MPS6514
2N3645	PN3645	2N3859A	2N5550	2N4087A	MPS6515
2N3647	2N2369	2N3877	2N5550	2N4091	2N4091
2N3663	2N3663	2N3901	2N5088	2N4092	2N4092
2N3663	2N3663	2N3903	2N3903	2N4093	2N4093
2N3671	2N2905A	2N3904	2N3904	2N4117	2N4117A
2N3672	2N2907A	2N3905	2N3905	2N4117A	2N4117A
2N3673	2N2907A	2N3906	2N3906	2N4118	2N4118
2N3678	2N2219A	2N3917	2N3917	2N4118A	2N4118A
2N3684	2N3684	2N3955	2N3955	2N4121	PN4121
2N3686	2N3686	2N3956	2N3956	2N4122	PN4122
2N3700	2N3700	2N3958	2N3958	2N4123	2N4123
2N3702	2N3702	2N3962	2N3962	2N4124	2N4124
2N3704	2N3704	2N3966	2N4392	2N4125	2N4125
2N3724	2N3724	2N3967	2N3684	2N4126	2N4126
2N3725	2N3725	2N3967A	2N3684	2N4140	2N4400
2N3734	2N3724	2N3968	2N3686	2N4141	PN4141
2N3735	2N3725	2N3968A	2N3686	2N4142	2N4402
2N3742	2N6719	2N3969	2N3686	2N4143	PN4143
2N3819	2N3819	2N3969A	2N3686	2N4207	2N4208
2N3820	2N3820	2N3970	2N4391	2N4208	2N4208
2N3822	2N3822	2N3971	2N4392	2N4209	2N4209
2N3823	2N4416	2N3972	2N4393	2N4227	2N4400
2N3825	2N4400	2N3973	2N4400	2N4228	2N4402
2N3830	2N2219A	2N3974	2N4400	2N4234	2N4234
2N3831	2N2219A	2N3975	2N4401	2N4256	2N3904
2N3843	2N3903	2N3976	2N4401	2N4274	PN4275
2N3843A	2N3903	2N3981	2N2219A	2N4284	2N5087
2N3844	2N3903	2N3982	2N2219A	2N4285	2N5087
2N3844A	2N3903	2N4008	2N4037	2N4286	MPS6515
2N3845	2N3903	2N4030	2N4032	2N4287	2N3859A
2N3845A	2N3903	2N4031	2N4033	2N4288	MPS6518

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2N4294	PN2369A	2N4858A	2N4392	2N5089	2N5089
2N4295	PN2369	2N4859	2N4859	2N5103	2N3684
2N4338	2N4338	2N4859A	2N4391	2N5104	2N3684
2N4339	2N4339	2N4860	2N4860	2N5106	2N2219A
2N4340	2N4340	2N4860A	2N4391	2N5107	2N2222
2N4354	PN4355	2N4861	2N4861	2N5114	2N5018
2N4355	PN4356	2N4861A	2N4392	2N5115	2N5115
2N4356	PN4355	2N4867	2N4339	2N5116	2N5116
2N4391	2N4391	2N4872	2N4208	2N5134	PN5134
2N4392	2N4392	2N4873	2N2369A	2N5135	PN2222
2N4393	2N4393	2N4888	2N5401	2N5136	PN2222
2N4400	2N4400	2N4916	PN4917	2N5137	PN2222
2N4401	2N4401	2N4917	PN4917	2N5138	PN5138
2N4402	2N4402	2N4943	2N3019	2N5139	PN4917
2N4403	2N4403	2N4944	PN3567	2N5140	PN3640
2N4404	2N4033	2N4951	2N2222	2N5141	PN3640
2N4404	2N4032	2N4952	2N2222	2N5142	PN2907
2N4405	2N4033	2N4953	2N2222	2N5143	PN2907
2N4406	2N4033	2N4954	2N2222	2N5172	2N5172
2N4407	2N4033	2N4964	2N5087	2N5175	2N5550
2N4410	2N4410	2N4966	PN2484	2N5179	2N5179
2N4416	2N4416	2N4967	PN2484	2N5186	2N2369
2N4416A	2N4416A	2N4968	PN3565	2N5209	2N5210
2N4418	PN2369A	2N4969	2N4400	2N5210	2N5210
2N4419	PN2369A	2N4970	2N4401	2N5219	2N3904
2N4420	PN2369A	2N4971	2N4402	2N5220	MPS6531
2N4421	PN2369A	2N4972	2N4403	2N5221	MPS3702
2N4422	PN2369A	2N5018	2N5018	2N5223	MPS6521
2N4423	PN2369	2N5019	2N5019	2N5224	PN2369
2N4424	2N4424	2N5020	2N5019	2N5225	2N4401
2N4449	2N2369A	2N5026A	MPSA14	2N5226	2N4402
2N4450	2N2222	2N5030	PN2369A	2N5227	PN4249
2N4452	2N2907	2N5055	PN4258	2N5228	PN3640
2N4856	2N4856	2N5056	2N4209	2N5245	2N5245
2N4856A	2N4391	2N5057	2N4209	2N5246	2N5246
2N4857	2N4857	2N5086	2N5087	2N5247	2N5247
2N4857A	2N4391	2N5087	2N5087	2N5307	2N5307
2N4858	2N4858	2N5088	2N5088	2N5308	2N5308

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Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2N5308A	MPSA14	2N5450	MPS3704	2N5817	2N3905
2N5309	2N5210	2N5457	2N5457	2N5818	2N3906
2N5310	2N5210	2N5458	2N5458	2N5819	2N3906
2N5311	2N5210	2N5459	2N5459	2N5821	MPSA55
2N5320	2N5320	2N5460	2N5460	2N5826	MPS6514
2N5322	2N5322	2N5461	2N5461	2N5827	MPS6515
2N5323	2N5323	2N5462	2N5462	2N5830	2N5830
2N5354	2N5366	2N5484	2N5484	2N5831	2N5551
2N5355	2N5366	2N5485	2N5485	2N5855	MPSA55
2N5358	2N3684	2N5486	2N5486	2N5857	MPSA56
2N5359	2N3684	2N5525	MPSA13	2N5861	2N3019
2N5360	2N3684	2N5550	2N5550	2N5864	2N4033
2N5361	2N3684	2N5551	2N5551	2N5865	2N4032
2N5365	2N5366	2N5555	2N5555	2N5906	2N5906
2N5366	2N5366	2N5556	2N4393	2N5908	2N5908
2N5368	2N4400	2N5557	2N4393	2N5909	2N5909
2N5369	2N4401	2N5558	2N4393	2N5911	2N5911
2N5371	2N4400	2N5564	2N5564	2N5912	2N5912
2N5372	2N4402	2N5565	2N5565	2N5949	2N5949
2N5373	2N4403	2N5566	2N5566	2N5950	2N5950
2N5375	2N4402	2N5592	2N3822	2N5951	2N5951
2N5380	2N3903	2N5593	2N3822	2N5952	2N5952
2N5381	2N3904	2N5594	2N3822	2N5953	2N5953
2N5382	2N3905	2N5638	2N5638	2N5961	2N5961
2N5383	2N3906	2N5638	2N5638	2N5962	2N5962
2N5397	2N5397	2N5653	2N5638	2N5999	2N5087
2N5400	2N5400	2N5654	2N5639	2N6000	2N4401
2N5401	2N5401	2N5679	2N5679	2N6001	2N4402
2N5415	2N5415	2N5680	2N5680	2N6004	2N4402
2N5418	2N4400	2N5682	2N5682	2N6009	2N5087
2N5419	2N4401	2N5763	2N2907A	2N6010	2N4401
2N5420	PN3566	2N5769	PN2369A	2N6011	2N4402
2N5432	2N5432	2N5770	2N5770	2N6021	D45H8
2N5433	2N5433	2N5771	2N5771	2N6427	2N6427
2N5434	2N5434	2N5772	2N5772	2N6485	2N6485
2N5447	MPS3702	2N5814	2N3903	2N6548	2N6548
2N5448	MPS3703	2N5815	2N3904	2N6549	2N6549
2N5449	MPS3704	2N5816	2N3904	2N6551	2N6551

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Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2N6553	2N6553	2N722A	2N2907	2N918	2N918
2N6554	2N6554	2N730	2N2222A	2N923	2N2907
2N6555	2N6555	2N734	2N2484	2N924	2N2907
2N669B	2N3019	2N734A	2N2484	2N925	2N2907
2N6706	2N6716	2N735	2N2484	2N926	2N2907
2N6707	2N6707	2N735A	2N2484	2N927	2N2907
2N6707	2N6707	2N736	2N2484	2N928	2N2907
2N6709	2N6728	2N736A	2N2484	2N929	2N930
2N6710	2N6732	2N736B	2N2484	2N929A	2N2484
2N6714	2N6714	2N742	2N2484	2N930	2N930
2N6715	2N6715	2N742A	2N2484	2N930A	2N2484
2N6716	2N6716	2N744	2N2369A	2N930B	2N2484
2N6717	2N6717	2N744A	2N2369A	2N935	2N2907
2N6718	2N6718	2N756A	2N2484	2N936	2N2907
2N6719	2N6719	2N757A	2N2484	2N937	2N2907
2N6724	2N6724	2N758A	2N2484	2N938	2N2907
2N6725	2N6725	2N758B	2N2484	2N939	2N2907
2N6726	2N6726	2N759A	2N2484	2N940	2N2907
2N6727	2N6727	2N759B	2N2484	2N941	2N2907
2N6728	2N6728	2N834A	2N2369A	2N942	2N2907
2N6729	2N6729	2N847	2N2369A	2N943	2N2907
2N6730	2N6730	2N850	2N2369A	2N944	2N2907
2N6731	2N6731	2N852	2N2369A	2N945	2N2907
2N6732	2N6732	2N858	2N2907	2N946	2N2907
2N696	2N2219A	2N859	2N2907	2N958	2N2369A
2N697	2N2219A	2N860	2N2907	2N959	2N2369A
2N699	2N3019	2N861	2N2907	2SK108	PN4392
2N699A	2N3019	2N862	2N2907	2SK109	U403
2N7000	2N7000	2N863	2N2907	2SK113	2N4393
2N7002	2N7002	2N864	2N2369A	2SK117	2N4340
2N7008	2N7000	2N864A	2N2369A	2SK118	2N4340
2N7051	2N7051	2N865	2N2907	2SK119	2N4340
2N7053	2N7053	2N865A	2N2907	2SK120	2N5484
2N706	2N2369	2N867	2N2907	2SK121	J211
2N706C	2N2369	2N869	2N4209	2SK123	MMBFJ201
2N708	2N708	2N869A	2N4209	2SK125	J310
2N709	2N2369A	2N914	2N2369A	2SK13	2N4340
2N721A	2N2907	2N914A	2N2369A	2SK148	2N5485

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Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2SK149	J309	2SK210BL	MMBFJ309	2SK334	MMBFJ201
2SK150	U403	2SK210GR	MMBFJ304	2SK35	J210
2SK154	2N5485	2SK210Y	MMBFJ304	2SK37	2N5484
2SK155	J309	2SK211	MMBFJ304	2SK370	J109
2SK156A	PN4117A	2SK212C	2N5484	2SK374	2N4340
2SK156B	PN4117A	2SK212D	2N5484	2SK376	PN4117A
2SK156C	PN4117A	2SK212E	2N5484	2SK377	MMBFJ201
2SK157	MMBFJ202	2SK212F	2N5484	2SK381	J113
2SK158	MMBFJ202	2SK217C	MMBFJ202	2SK39	PN4117A
2SK160	MMBFJ202	2SK217D	MMBFJ304	2SK39A	PN4117A
2SK163	J113	2SK217E	MMBFJ304	2SK40	2N4339
2SK165	J309	2SK238K14	MMBFJ202	2SK404	2N5485
2SK168D	2N5485	2SK238K15	MMBFJ202	2SK40B	2N4339
2SK168E	J304	2SK238K16	MMBFJ304	2SK40C	2N4340
2SK168F	2N5486	2SK238K17	MMBFJ304	2SK41	2N5486
2SK185	2N5486	2SK23A-8	2N5485	2SK41C	2N5484
2SK192ABL	2N5486	2SK23A-9	2N4416A	2SK41D	2N5484
2SK192AGR	2N5484	2SK242C	MMBFJ202	2SK41E	2N5484
2SK192AY	2N5484	2SK242D	MMBFJ202	2SK41F	2N5485
2SK193EF	2N5484	2SK242E	MMBFJ304	2SK42	2N5484
2SK193FF	2N5484	2SK242F	MMBFJ304	2SK425	MMBFJ304
2SK193KF	2N5484	2SK25	2N5486	2SK426	MMBFJ304
2SK193LF	2N5484	2SK266	PN4117A	2SK43S	J113
2SK193MF	2N5485	2SK270	U403	2SK43S-D	J113
2SK193PF	2N5484	2SK292	2N5484	2SK47	2N5484
2SK193UF	J201	2SK30	J211	2SK49	2N5484
2SK195F	2N5484	2SK30AGR	2N4340	2SK49E	2N5484
2SK195H	2N5484	2SK30AO	2N4339	2SK49F	2N5484
2SK195J	2N5485	2SK30ATM	J211	2SK49H	2N5484
2SK197C	MMBFJ202	2SK30AY	2N4340	2SK507	J309
2SK197D	MMBFJ304	2SK314	2N4416A	2SK508	MMBFJ309
2SK197E	MMBFJ304	2SK315E	2N5484	2SK54	2N5484
2SK199	2N5485	2SK315F	2N5485	2SK54B	2N5484
2SK19BL	J309	2SK315G	J211	2SK54C	2N5484
2SK19GR	J304	2SK33	J304	2SK55	2N5485
2SK19Y	2N5485	2SK330GR	J202	2SK55D	2N5485
2SK208	MMBFJ202	2SK330Y	J202	2SK55E	2N5485
2SK209	MMBFJ304	2SK331	MMBFJ201	2SK56	2N5484

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
2SK57	2N5484	A5T4402	2N4402	AAZ18	1N916
2SK61	2N5484	A5T4403	2N4403	BA127	1N4151
2SK65	J201	A5T5058	MPSA42	BA128	1N4151
2SK66	J202	A5T5059	MPSA42	BA130	1N4454
2SK67	MMBFJ201	A5T5086	2N5087	BA136	1N4151
2SK67A	MMBFJ201	A5T5087	2N5087	BA152	1N4150
2SK68	2N4340	A5T5172	2N4124	BA154	1N4150
2SK68A	2N4340	A5T5220	MPS6531	BA165	1N4150
2SK83	2N5484	A5T5223	MPS6521	BA166	1N4454
2SK93	PN4117A	A5T5225	2N4401	BA167	1N4454
2SK94	MMBFJ202	A5T5226	2N4402	BA192	FDH400
A5T2192	PN2222A	A5T5227	PN4249	BA193	FDH400
A5T2222	PN2222A	A5T5400	2N5400	BA194	FDH400
A5T2243	MPSA06	A5T5550	2N5550	BA197	FDH400
A5T2604	2N5087	A5T5551	2N5551	BA198	FDH400
A5T2605	2N5087	A7T3392	MPS3393	BA200	1N4148
A5T2907	PN2907	A7T3392	MPS3393	BA217	1N4148
A5T3392	MPS3393	A7T5172	MPS3393	BA218	1N4148
A5T3504	PN2907	A8T3702	MPS3702	BAS13	FDH400
A5T3506	PN2907	A8T3703	MPS3703	BAS16	BAS16
A5T3638	MPS6534	A8T3704	MPS3704	BAS19	BAS19
A5T3638A	MPS6534	A8T3705	MPS3704	BAS20	BAS21
A5T3644	PN2907	A8T4058	2N5087	BAS21	BAS21
A5T3646	PN2907	A8T4059	2N3905	BAS29	BAS29
A5T3903	2N3903	A8T4060	2N3905	BAS31	BAS31
A5T3904	2N3904	A8T4061	2N3906	BAS35	BAS35
A5T3905	2N3905	A8T5172	MPS3393	BAV19	BAV19
A5T3906	2N3906	AA113	1N4151	BAV20	BAV20
A5T4058	2N5087	AA114	1N916	BAV21	BAV21
A5T4059	2N3905	AA116	1N916	BAV68	BAY72
A5T4060	2N3905	AA129	1N916	BAV69	FDH400
A5T4061	2N3906	AA131	1N916	BAV70	BAV70
A5T4123	2N4123	AA137	1N916	BAV74	BAV74
A5T4124	2N4124	AA138	1N916	BAV99	BAV99
A5T4125	2N4125	AA139	BAV21	BAW10	1N4150
A5T4126	2N4126	AA10	1N916	BAW11	BAV19
A5T4248	PN4249	AA48	1N916	BAW12	BAV20
A5T4249	PN4249	AAZ13	1N916	BAW24	1N4150

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
BAW33	BAY72	BC183L	BC183L	BC848	BC848
BAW46	BAY72	BC184	BC184	BC849	BC849
BAW47	BAY72	BC184L	BC184L	BC850	BC850
BAW50	FDH400	BC212	BC212	BC856	BC856
BAW51	BAY72	BC212B	BC212B	BC857	BC857
BAW52	FDH400	BC212L	BC212L	BC858	BC857
BAW53	1N4150	BC214LC	BC214LC	BC859	BC857
BAW54	1N4150	BC237	BC237	BC860	BC857
BAW55	BAY72	BC238	BC238	BCF29	BC857
BAW56	BAW56	BC239	BC239	BCF30	BC857
BAW62	BAW62	BC307	BC307	BCF32	BC847
BAW75	1N4150	BC308	BC308	BCF33	BC847
BAW76	BAW76	BC309	BC309	BCF70	BC857
BAW77	BAY72	BC327	BC327	BCF81	BC847
BAX13	1N4449	BC328	BC328	BCP52	BCP52
BAX15	FDH400	BC337	BC337	BCP53	BCP53
BAX16	BAX16	BC338	BC338	BCP55	BCP55
BAX17	FDH400	BC368	BC368	BCP56	BCP56
BAX20	FDH444	BC546	BC546	BCV71	BC846
BAX21	FDH444	BC547	BC547	BCV72	BC846
BAX83	BAY72	BC548	BC548	BCW29	BC857
BAY17	BAY72	BC549	BC549	BCW30	BC857
BAY18	BAY72	BC550	BC550	BCW31	BC847
BAY19	BAY72	BC557	BC557	BCW32	BC847
BAY20	FDH400	BC558	BC558	BCW33	BCW33
BAY43	1N4148	BC559	BC559	BCW60A	BC847
BAY60	1N4150	BC635	BC635	BCW61A	BC857
BAY61	1N4150	BC636	BC636	BCW69	BC857
BAY63	1N4150	BC637	BC637	BCW70	BC857
BAY68	1N4150	BC638	BC638	BCW71	BC847
BAY69	1N4150	BC639	BC639	BCW72	BC847
BAY71	BAY71	BC640	BC640	BCW81	BC847
BAY72	BAY72	BC807	BC807	BCW89	BC856
BAY73	BAY73	BC808	BC807	BCX17	BCX17
BAY74	1N4150	BC817	BC817	BCX18	BCX18
BAY80	BAY80	BC818	BC817	BCX19	BCX19
BAY82	BAY82	BC846	BC846	BCX20	BC817
BC182	BC182	BC847	BC847	BCX59-9	BCX59-9

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
BCX70	BC847	BUK452-100A	NDP410A	BUK555-50A	NDP605BL
BCX71	BCX71	BUK452-100B	NDP410B	BUK555-50B	NDP505AL
BCX79	BCX79	BUK452-50A	NDP405A	BUK555-60A	NDP606BL
BD370	BD370	BUK452-50B	NDP405B	BUK555-60B	NDP506AL
BD371	BD371	BUK452-60A	NDP406A	BUZ11	BUZ11
BF244	BF244	BUK452-60B	NDP406B	BUZ11A	BUZ11A
BF245	BF245	BUK453-100A	NDP510B	BUZ20	BUZ20
BF247	BF247	BUK453-100B	NDP510B	BUZ21	BUZ21
BF256	BF256	BUK453-50A	NDP505B	BUZ71	BUZ71
BS170	BS170	BUK453-50B	NDP405A	BUZ71A	BUZ71A
BS270	BS270	BUK453-60A	NDP506B	BZX55B10	BZX55B10
BSR111	MMBFJ111	BUK453-60B	NDP406A	BZX55B11	BZX55B11
BSR112	MMBFJ112	BUK455-100A	NDP610B	BZX55B12	BZX55B12
BSR113	MMBFJ113	BUK455-100B	NDP610B	BZX55B13	BZX55B13
BSR13	MMBT2222	BUK455-50A	NDP605B	BZX55B15	BZX55B15
BSR14	MMBT2222A	BUK455-50B	NDP505A	BZX55B16	BZX55B16
BSR15	MMBT2907	BUK456-100A	NDP610A	BZX55B18	BZX55B18
BSR16	MMBT2907A	BUK456-100B	NDP610A	BZX55B20	BZX55B20
BSR17	BSR17A	BUK456-50A	NDP605B	BZX55B22	BZX55B22
BSR17	BSR17A	BUK456-50B	NDP605B	BZX55B24	BZX55B24
BSR174	MMBFJ174	BUK456-60A	NDP606B	BZX55B27	BZX55B27
BSR175	MMBFJ175	BUK456-60B	NDP606B	BZX55B30	BZX55B30
BSR176	MMBFJ176	BUK482-100A	BUK482-100A	BZX55B33	BZX55B33
BSR177	MMBFJ177	BUK552-100A	NDP410AL	BZX55B3V3	BZX55B3V3
BSR17A	BSR17A	BUK552-100B	NDP410BL	BZX55B3V6	BZX55B3V6
BSR18	MMBT3906	BUK552-50A	NDP405BL	BZX55B3V9	BZX55B3V9
BSR18A	MMBT3906	BUK552-50B	NDP405BL	BZX55B4V3	BZX55B4V3
BSR19	MMBT5550	BUK552-60A	NDP406BL	BZX55B4V7	BZX55B4V7
BSR19A	MMBT5551	BUK552-60B	NDP406BL	BZX55B5V1	BZX55B5V1
BSR20	MMBT5400	BUK553-100A	NDP510BL	BZX55B5V6	BZX55B5V6
BSR20A	MMBT5401	BUK553-100B	NDP510A	BZX55B6V2	BZX55B6V2
BSR56	MMBF4391	BUK553-100B	NDP410AL	BZX55B6V8	BZX55B6V8
BSR57	MMBF4392	BUK553-50A	NDP505BL	BZX55B7V5	BZX55B7V5
BSR58	BSR58	BUK553-50B	NDP405AL	BZX55B8V2	BZX55B8V2
BSS84	BSS84	BUK553-60A	NDP506BL	BZX55B9V1	BZX55B9V1
BSS123	BSS123	BUK553-60B	NDP406AL	BZX55C10	BZX55C10
BSS138	BSS138	BUK555-100A	NDP610B	BZX55C11	BZX55C11
BSV52	BSV52	BUK555-100B	NDP510A	BZX55C12	BZX55C12



## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
BZX55C13	BZX55C13	BZX79C22	BZX79C22	BZX84C12	BZX84C12
BZX55C15	BZX55C15	BZX79C22	BZX79C22	BZX84C12	BZX84C12
BZX55C16	BZX55C16	BZX79C24	BZX79C24	BZX84C13	BZX84C13
BZX55C18	BZX55C18	BZX79C24	BZX79C24	BZX84C13	BZX84C13
BZX55C20	BZX55C20	BZX79C27	BZX79C27	BZX84C15	BZX84C15
BZX55C22	BZX55C22	BZX79C27	BZX79C27	BZX84C15	BZX84C15
BZX55C24	BZX55C24	BZX79C30	BZX79C30	BZX84C16	BZX84C16
BZX55C27	BZX55C27	BZX79C30	BZX79C30	BZX84C16	BZX84C16
BZX55C30	BZX55C30	BZX79C33	BZX79C33	BZX84C18	BZX84C18
BZX55C33	BZX55C33	BZX79C33	BZX79C33	BZX84C18	BZX84C18
BZX55C3V3	BZX55C3V3	BZX79C3V3	BZX79C3V3	BZX84C20	BZX84C20
BZX55C3V6	BZX55C3V6	BZX79C3V3	BZX79C3V3	BZX84C20	BZX84C20
BZX55C3V9	BZX55C3V9	BZX79C3V6	BZX79C3V6	BZX84C22	BZX84C22
BZX55C4V3	BZX55C4V3	BZX79C3V6	BZX79C3V6	BZX84C22	BZX84C22
BZX55C4V7	BZX55C4V7	BZX79C3V9	BZX79C3V9	BZX84C24	BZX84C24
BZX55C5V1	BZX55C5V1	BZX79C3V9	BZX79C3V9	BZX84C24	BZX84C24
BZX55C5V6	BZX55C5V6	BZX79C4V3	BZX79C4V3	BZX84C27	BZX84C27
BZX55C6V2	BZX55C6V2	BZX79C4V3	BZX79C4V3	BZX84C27	BZX84C27
BZX55C6V8	BZX55C6V8	BZX79C4V7	BZX79C4V7	BZX84C30	BZX84C30
BZX55C7V5	BZX55C7V5	BZX79C4V7	BZX79C4V7	BZX84C30	BZX84C30
BZX55C8V2	BZX55C8V2	BZX79C5V1	BZX79C5V1	BZX84C33	BZX84C33
BZX55C9V1	BZX55C9V1	BZX79C5V1	BZX79C5V1	BZX84C33	BZX84C33
BZX79C10	BZX79C10	BZX79C5V6	BZX79C5V6	BZX84C4V7	BZX84C4V7
BZX79C10	BZX79C10	BZX79C5V6	BZX79C5V6	BZX84C4V7	BZX84C4V7
BZX79C11	BZX79C11	BZX79C6V2	BZX79C6V2	BZX84C5V1	BZX84C5V1
BZX79C11	BZX79C11	BZX79C6V2	BZX79C6V2	BZX84C5V1	BZX84C5V1
BZX79C12	BZX79C12	BZX79C6V8	BZX79C6V8	BZX84C5V6	BZX84C5V6
BZX79C12	BZX79C12	BZX79C6V8	BZX79C6V8	BZX84C5V6	BZX84C5V6
BZX79C13	BZX79C13	BZX79C7V5	BZX79C7V5	BZX84C6V2	BZX84C6V2
BZX79C13	BZX79C13	BZX79C7V5	BZX79C7V5	BZX84C6V2	BZX84C6V2
BZX79C15	BZX79C15	BZX79C8V2	BZX79C8V2	BZX84C6V8	BZX84C6V8
BZX79C15	BZX79C15	BZX79C8V2	BZX79C8V2	BZX84C6V8	BZX84C6V8
BZX79C16	BZX79C16	BZX79C9V1	BZX79C9V1	BZX84C7V5	BZX84C7V5
BZX79C16	BZX79C16	BZX79C9V1	BZX79C9V1	BZX84C7V5	BZX84C7V5
BZX79C18	BZX79C18	BZX84C10	BZX84C10	BZX84C8V2	BZX84C8V2
BZX79C18	BZX79C18	BZX84C10	BZX84C10	BZX84C8V2	BZX84C8V2
BZX79C20	BZX79C20	BZX84C11	BZX84C11	BZX84C9V1	BZX84C9V1
BZX79C20	BZX79C20	BZX84C11	BZX84C11	BZX84C9V1	BZX84C9V1

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
BZX85C10	BZX85C10	D32H1	MPSA05	EN1132	MPS6534
BZX85C11	BZX85C11	D32H4	MPSA06	EN2369A	PN2369A
BZX85C12	BZX85C12	D32J1	MPSA55	EN3009	PN3646
BZX85C13	BZX85C13	D32J3	MPSA56	EN3013	PN3646
BZX85C15	BZX85C15	D32L1	MPSA13	EN3014	PN3646
BZX85C16	BZX85C16	D32L2	MPSA14	EN3502	PN3646
BZX85C18	BZX85C18	D32L4	MPSA13	EN914	PN3646
BZX85C20	BZX85C20	D32L5	MPSA14	EN915	2N3903
BZX85C22	BZX85C22	D32S1	2N5089	EN916	2N3903
BZX85C24	BZX85C24	D32V1	MPSA42	FASO2503	FASO2503
BZX85C27	BZX85C27	D32V2	MPSA42	FASO2509	FASO2509
BZX85C30	BZX85C30	D32V3	MPSA42	FASO2563	FASO2563
BZX85C33	BZX85C33	D33D21	MPSA05	FASO2564	FASO2564
BZX85C3V3	BZX85C3V3	D33D22	MPSA05	FASO2565	FASO2565
BZX85C3V6	BZX85C3V6	D33D23	MPSA05	FASO2618	FASO2618
BZX85C3V9	BZX85C3V9	D33D24	MPSA05	FASO2619	FASO2619
BZX85C4V3	BZX85C4V3	D33D26	MPSA05	FASO2620	FASO2620
BZX85C4V7	BZX85C4V7	D33D26	MPSA05	FASO2719	FASO2719
BZX85C5V1	BZX85C5V1	D33D27	2N4401	FASO2720	FASO2720
BZX85C5V6	BZX85C5V6	D33D28	MPSA06	FD666	FDH600
BZX85C6V2	BZX85C6V2	D33D29	MPSA06	FD700	FD700
BZX85C6V8	BZX85C6V8	D33E30	MPSA06	FD777	FD777
BZX85C7V5	BZX85C7V5	D44C1	D44C11	FDH300	FDH300A
BZX85C8V2	BZX85C8V2	D44C10	D44C11	FDH300A	FDH300A
BZX85C9V1	BZX85C9V1	D44C11	D44C11	FDH333	FDH333
D29E1	MPS6534	D44C12	D44C11	FDH400	FDH400
D29E10	PN2907	D44C2	D44C11	FDH444	FDH444
D29E2	MPS6534	D44C3	D44C11	FDH600	FDH600
D29E4	2N4402	D44C4	D44C11	FDH666	FDH600
D29E5	2N4402	D44C5	D44C11	FDH900	FDH600
D29E6	2N4403	D44C6	D44C11	FDH999	1N4148
D29E7	2N4403	D44C7	D44C11	FDLL300	FDLL300
D29E9	PN2907	D44C8	D44C11	FDLL3595	FDLL3595
D29F1	MPS6534	D44C9	D44C11	FDLL4148	FDLL4148
D29F2	MPS6534	DA1701	1N4148	FDLL4150	FDLL4150
D29F4	2N5087	DA1702	1N4148	FDLL4448	FDLL4448
D29F5	PN2907	DA1703	1N4148	FDLL600	FDLL600
D29F6	PN2907	DA1704	1N4148	FDLL914	FDLL914

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
FDN400	FDH400	FMMT2907	MMBT2907	FMMZ5240	MMBZ5240B
FDN444	FDH444	FMMT2907A	MMBT2907A	FMMZ5241	MMBZ5241B
FDN666	FDH600	FMMT3903	MMBT3904	FMMZ5242	MMBZ5242B
FDSO1201	MMBD1201	FMMT3904	MMBT3904	FMMZ5243	MMBZ5243B
FDSO1202	MMBD1202	FMMT3905	MMBT3906	FMMZ5244	MMBZ5244B
FDSO1203	MMBD1203	FMMT3906	MMBT3906	FMMZ5245	MMBZ5245B
FDSO1204	MMBD1204	FMMT4123	MMBT3904	FMMZ5246	MMBZ5246B
FDSO1205	MMBD1205	FMMT4124	MMBT4124	FMMZ5247	MMBZ5247B
FDSO1401	MMBD1401	FMMT4125	MMBT3906	FMMZ5248	MMBZ5248B
FDSO1402	MMBD1402	FMMT4126	MMBT4126	FMMZ5249	MMBZ5249B
FDSO1403	MMBD1403	FMMT4400	MMBT4400	FMMZ5251	MMBZ5251B
FDSO1404	MMBD1404	FMMT4401	MMBT4401	FMMZ5252	MMBZ5252B
FDSO1405	MMBD1405	FMMT4402	MMBT4403	FMMZ5253	MMBZ5253B
FDSO1501	MMBD1501A	FMMT4403	MMBT4403	FMMZ5254	MMBZ5254B
FDSO1502	MMBD1502A	FMMT5086	MMBT5086	FMMZ5255	MMBZ5255B
FDSO1503	MMBD1503A	FMMT5087	MMBT5087	FMMZ5256	MMBZ5256B
FDSO1504	MMBD1504A	FMMT5088	MMBT5088	FMMZ5257	MMBZ5257B
FDSO1505	MMBD1505A	FMMT5089	MMBT5089	FT3903	2N3903
FDSO1701	MMBD1701	FMMTA05	MMBTA05	FT3904	2N3904
FDSO1702	MMBD1702	FMMTA06	MMBTA06	FT3905	2N3905
FDSO1703	MMBD1703	FMMTA13	MMBTA13	FT3906	2N3906
FDSO1704	MMBD1704	FMMTA14	MMBTA14	GE-10	PN2222
FDSO1705	MMBD1705	FMMTA20	MMBT3904	GE-17	MPSA05
FDSO4148	MMBD4148	FMMTA42	MMBTA42	GE-20	2N4401
FDSO4148	MMBD4148	FMMTA43	MMBTA42	GET2221	PN2222
FDSO914	MMBD914	FMMTA55	MMBTA55	GET2221A	PN2222A
FJT1100	FJT1100	FMMTA56	MMBTA56	GET2222	PN2222
FJT1101	FJT1101	FMMTA70	MMBT5086	GET2222A	PN2222A
FMMD2835	MMBD1205	FMMTA92	MMBTA92	GET2369	PN2369
FMMD2836	MMBD1205	FMMTA93	MMBTA92	GET2907	PN2907
FMMD2837	MMBD1204	FMMZ5232	MMBZ5232B	GET3638	MPS6534
FMMD2838	MMBD1204	FMMZ5233	MMBZ5233B	GET3638A	MPS6534
FMMD6100	MMBD4148	FMMZ5234	MMBZ5234B	GET3646	PN2907
FMMD914	MMBD914	FMMZ5235	MMBZ5235B	GET5305	MPSA13
FMMT2222	MMBT2222	FMMZ5236	MMBZ5236B	GET5306	MPSA14
FMMT2222A	MMBT2222A	FMMZ5237	MMBZ5237B	GET5307	MPSA13
FMMT2369	MMBT2369	FMMZ5238	MMBZ5238B	GET5308	MPSA14
FMMT2369A	MMBT2369A	FMMZ5239	MMBZ5239B	GET5308A	MPSA14

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
GET929	MPS6514	IRFZ48	IRFZ48	MCR100-3	MCR100-3
GET930	MPS6514	IRL510	IRL510	MCR100-4	MCR100-4
IRF510	IRF510	IRL520	IRL520	MCR100-6	MCR100-6
IRF510	NDP410B	IRL530	IRL530	MCR100-8	MCR100-8
IRF520	IRF520	IRL540	IRL540	MM2055-2	2N2907
IRF521	NDP508B	IRLR014	NDD406BL	MM2270	2N2270
IRF522	NDP410B	IRLR024	NDD406AL	MM3005	2N3019
IRF523	NDP408B	IRLU014	NDU406BL	MM3006	2N3019
IRF530	IRF530	IRLU024	NDU406AL	MM3019	2N3019
IRF531	NDP408A	IRLZ14	IRLZ14	MM3020	2N3019
IRF532	NDP410A	IRLZ24	IRLZ24	MM3053	2N3053
IRF533	NDP408B	IRLZ34	IRLZ34	MM4005	2N4032
IRF540	IRF540	IRLZ44	IRLZ44	MM4006	2N4033
IRF541	NDP508A	J105	J105	MM4007	2N4033
IRF542	NDP610B	J106	J106	MM4009	2N4033
IRF543	NDP508B	J108	J108	MM4030	2N4032
IRFP044	NDP606B	J109	J109	MM4031	2N4033
IRFP054	NDP706A	J110	J110	MM4032	2N4032
IRFR014	NDD406B	J111	J111	MM4033	2N4033
IRFR024	NDD406A	J112	J112	MM4036	2N4036
IRFU014	NDU406B	J113	J113	MM4037	2N4037
IRFU024	NDU406A	J174	J174	MM4208	2N4208
IRFZ10	NDP405B	J175	J175	MM4209	2N4209
IRFZ12	NDP405B	J176	J176	MM4257	2N4208
IRFZ14	IRFZ14	J177	J177	MM5005	2N4032
IRFZ15	NDP406B	J201	J201	MM5006	2N4033
IRFZ20	NDP405A	J202	J202	MMBD1201	MMBD1201
IRFZ22	NDP405A	J203	J202	MMBD1202	MMBD1202
IRFZ24	IRFZ24	J211	J211	MMBD1203	MMBD1203
IRFZ25	NDP406A	J270	J270	MMBD1204	MMBD1204
IRFZ30	NDP505A	J270	J270	MMBD1205	MMBD1205
IRFZ32	NDP505B	J271	J271	MMBD1401	MMBD1401
IRFZ34	IRFZ34	J300	J300	MMBD1402	MMBD1402
IRFZ35	NDP505B	J304	J304	MMBD1403	MMBD1403
IRFZ40	NDP605B	J305	J305	MMBD1404	MMBD1404
IRFZ42	NDP605B	J308	J309	MMBD1405	MMBD1405
IRFZ44	IRFZ44	J309	J309	MMBD1501	MMBD1501A
IRFZ45	NDP606B	J310	J310	MMBD1501A	MMBD1501A

MMBD1502A	MMBD1502A	MMBF5484	MMBF5484	MMBT4126	MMBT4126
MMBD1503	MMBD1503A	MMBF5486	MMBF5486	MMBT4209	MMBT4209
MMBD1503A	MMBD1503A	MMBFJ111	MMBFJ111	MMBT4258	MMBT4258
MMBD1504	MMBD1504A	MMBFJ112	MMBFJ112	MMBT4400	MMBT4401
MMBD1504A	MMBD1504A	MMBFJ113	MMBFJ113	MMBT4401	MMBT4401
MMBD1505	MMBD1505A	MMBFJ174	MMBFJ174	MMBT4402	MMBT4403
MMBD1505A	MMBD1505A	MMBFJ175	MMBFJ175	MMBT4403	MMBT4403
MMBD1701	MMBD1701	MMBFJ176	MMBFJ176	MMBT5086	MMBT5086
MMBD1702	MMBD1702	MMBFJ177	MMBFJ177	MMBT5087	MMBT5087
MMBD1703	MMBD1703	MMBFJ201	MMBFJ201	MMBT5088	MMBT5088
MMBD1704	MMBD1704	MMBFJ202	MMBFJ202	MMBT5089	MMBT5089
MMBD1705	MMBD1705	MMBFJ203	MMBFJ203	MMBT5179	MMBT5179
MMBD2835	MMBD1205	MMBFJ270	MMBFJ270	MMBT5401	MMBT5401
MMBD2836	MMBD1205	MMBFJ271	MMBFJ271	MMBT5550	MMBT5550
MMBD2837	MMBD1204	MMBFJ304	MMBFJ304	MMBT5551	MMBT5551
MMBD2838	MMBD1204	MMBFJ305	MMBFJ305	MMBT5771	MMBT5771
MMBD4148	MMBD4148	MMBFJ308	MMBFJ309	MMBT6515	MMBT6515
MMBD4148	MMBD4148	MMBFJ309	MMBFJ309	MMBTA05	MMBTA05
MMBD6100	MMBD4148	MMBFJ310	MMBFJ310	MMBTA06	MMBTA06
MMBD914	MMBD914	MMBFU310	MMBFJ310	MMBTA13	MMBTA13
MMBF4118	MMBF4118	MMBT100	MMBT100	MMBTA14	MMBTA14
MMBF4119	MMBF4119	MMBT200	MMBT200	MMBTA20	MMBT3904
MMBF4391	MMBF4391	MMBT2222	MMBT2222	MMBTA42	MMBTA42
MMBF4392	MMBF4392	MMBT2222A	MMBT2222A	MMBTA43	MMBTA42
MMBF4393	MMBF4393	MMBT2369	MMBT2369	MMBTA55	MMBTA55
MMBF4416	MMBF4416	MMBT2905	MMBT2907	MMBTA56	MMBTA56
MMBF4859	MMBF4859	MMBT2905A	MMBT2907A	MMBTA70	MMBT5086
MMBF4860	MMBFJ112	MMBT2907	MMBT2907	MMBTA92	MMBTA92
MMBF4861	MMBF4861	MMBT2907A	MMBT2907A	MMBTA93	MMBTA92
MMBF5114	MMBF5114	MMBT3393	MMBT2222	MMBTH10	MMBTH10
MMBF5115	MMBF5115	MMBT3640	MMBT3640	MMBTH11	MMBTH11
MMBF5116	MMBF5116	MMBT3642	MMBT100	MMBTH24	MMBTH24
MMBF5457	MMBF5457	MMBT3646	MMBT3646	MMBTH34	MMBTH34
MMBF5458	MMBF5458	MMBT3904	MMBT3904	MMBTH81	MMBTH81
MMBF5459	MMBF5459	MMBT3906	MMBT3906	MMBZ5226	MMBZ5226B
MMBF5460	MMBF5460	MMBT4123	MMBT3904	MMBZ5226B	MMBZ5226B
MMBF5461	MMBF5461	MMBT4124	MMBT4124	MMBZ5227	MMBZ5227B

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
MMBZ5227B	MMBZ5227B	MMBZ5247	MMBZ5247B	MPF256	J309
MMBZ5228	MMBZ5228B	MMBZ5247B	MMBZ5247B	MPF3822	2N3822
MMBZ5228B	MMBZ5228B	MMBZ5248	MMBZ5248B	MPF3823	2N3822
MMBZ5229	MMBZ5229B	MMBZ5248B	MMBZ5248B	MPF4391	PN4391
MMBZ5229B	MMBZ5229B	MMBZ5249	MMBZ5249B	MPF4392	PN4392
MMBZ5230	MMBZ5230B	MMBZ5249B	MMBZ5249B	MPF4416	PN4416
MMBZ5230B	MMBZ5230B	MMBZ5250B	MMBZ5250B	MPF4856A	2N4856
MMBZ5231	MMBZ5231B	MMBZ5251B	MMBZ5251B	MPF4857A	2N4856
MMBZ5231B	MMBZ5231B	MMBZ5252B	MMBZ5252B	MPF4858A	2N4858
MMBZ5232B	MMBZ5232B	MMBZ5253B	MMBZ5253B	MPF4859A	2N4859
MMBZ5233	MMBZ5233B	MMBZ5254B	MMBZ5254B	MPF4860A	2N4860
MMBZ5233B	MMBZ5233B	MMBZ5255B	MMBZ5255B	MPF4861A	2N4861
MMBZ5234	MMBZ5234B	MMBZ5256B	MMBZ5256B	MPF970	J174
MMBZ5234B	MMBZ5234B	MMBZ5257B	MMBZ5257B	MPF971	J176
MMBZ5235	MMBZ5235B	MMST2222	MMBT2222	MPS2222	PN2222
MMBZ5235B	MMBZ5235B	MMST2222A	MMBT2222A	MPS2222A	PN2222A
MMBZ5236	MMBZ5236B	MMST2907	MMBT2907	MPS2369	PN2369
MMBZ5236B	MMBZ5236B	MMST2907A	MMBT2907A	MPS2369A	PN2369A
MMBZ5237	MMBZ5237B	MMST3904	MMBT3904	MPS2713	2N3904
MMBZ5237B	MMBZ5237B	MMST3906	MMBT3906	MPS2714	PN2369
MMBZ5238	MMBZ5238B	MMST4124	MMBT3904	MPS2907	PN2907
MMBZ5238B	MMBZ5238B	MMST4126	MMBT3906	MPS2907A	PN2907A
MMBZ5239	MMBZ5239B	MMST4401	MMBT4401	MPS2923	2N4123
MMBZ5239B	MMBZ5239B	MMST4403	MMBT4403	MPS2923	2N4123
MMBZ5240	MMBZ5240B	MMST5086	MMBT5086	MPS2924	2N4124
MMBZ5240B	MMBZ5240B	MMST5087	MMBT5087	MPS2925	2N4124
MMBZ5241	MMBZ5241B	MMST5088	MMBT5088	MPS2926	2N4124
MMBZ5241B	MMBZ5241B	MMST5089	MMBT5089	MPS3392	PN2222
MMBZ5242	MMBZ5242B	MMSTA06	MMBTA06	MPS3393	PN2222
MMBZ5242B	MMBZ5242B	MMSTA13	MMBTA13	MPS3394	PN2222
MMBZ5243	MMBZ5243B	MMSTA14	MMBTA14	MPS3395	PN2222
MMBZ5243B	MMBZ5243B	MMSTA20	MMBT3904	MPS3564	PN2369
MMBZ5244	MMBZ5244B	MMSTA56	MMBTA56	MPS3638	PN3638
MMBZ5244B	MMBZ5244B	MMSTA70	MMBTA5086	MPS3639	PN3640
MMBZ5245	MMBZ5245B	MPE910	2N7000	MPS3640	PN3640
MMBZ5245B	MMBZ5245B	MPF102	BF245A	MPS3644	PN3644
MMBZ5246	MMBZ5246B	MPF108	BF245	MPS3645	PN3645
MMBZ5246B	MMBZ5246B	MPF111	BF245	MPS3646	PN3646

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
MPS3702	MPS3702	MPS6576	PN100	MPSD53	2N5550
MPS3703	MPS3703	MPS706	PN2369	MPSD56	2N3906
MPS3704	MPS3704	MPS706A	PN2369	MPSH10	MPSH10
MPS3705	MPS3705	MPS708	PN2369	MPSL01	2N5550
MPS3706	PN930	MPS8098	MPS8098	MPSL51	2N5550
MPS3707	PN930	MPS834	PN2369	MTD10N05E	NDD406A
MPS3709	PN930	MPS836	PN2369	MTD10N05E-1	NDU406A
MPS3710	PN930	MPS929A	PN2369	MTD3055E	MTD3055E
MPS3711	PN930	MPS930	PN2369	MTD3055E-1	MTD3055E1
MPS3904	2N3904	MPSA05	MPSA05	MTD3055EL	MTD3055EL
MPS3905	2N3905	MPSA06	MPSA06	MTD3055EL-1	MTD3055EL1
MPS3906	2N3906	MPSA09	2N5088	MTD5N05	NDD406B
MPS4888	2N5401	MPSA10	PN2222A	MTD5N05-1	NDU406B
MPS4889	2N5401	MPSA12	MPSA12	MTD5N06	NDD406B
MPS5134	PN2369	MPSA13	MPSA13	MTD5N06-1	NDU406B
MPS5172	PN2222	MPSA14	MPSA14	MTP10N05	NDP405B
MPS5551	2N5551	MPSA18	MPSA18	MTP10N06	NDP406B
MPS6512	MPS6513	MPSA25	2N7053	MTP10N06E	NDP406BE
MPS6513	MPS6513	MPSA26	2N7053	MTP10N08	NDP408B
MPS6514	MPS6514	MPSA27	2N7053	MTP10N10	NDP410B
MPS6515	MPS6515	MPSA42	MPSA42	MTP10N10E	MTP10N10E
MPS6516	PN4121	MPSA43	MPSA43	MTP12N05E	MTP12N05E
MPS6518	MPS6518	MPSA55	MPSA55	MTP12N06	NDP406B
MPS6520	MPS6521	MPSA56	MPSA56	MTP12N08	NDP408A
MPS6521	MPS6521	MPSA62	MPSA63	MTP12N08L	NDP408BL
MPS6522	2N3904	MPSA63	MPSA63	MTP12N10	NDP510B
MPS6523	2N5087	MPSA64	MPSA65	MTP12N10E	NDP510BE
MPS6530	2N3904	MPSA70	2N5087	MTP12N10EL	NDP510BEL
MPS6531	2N3904	MPSA92	MPSA92	MTP15N05	NDP405B
MPS6532	2N3904	MPSA93	MPSA92	MTP15N05E	MTP15N05E
MPS6533	2N3906	MPSD01	MPSA42	MTP15N05L	NDP405B
MPS6534	2N3906	MPSD02	2N5550	MTP15N06	NDP406B
MPS6535	2N3906	MPSD03	2N5550	MTP15N06E	MTP15N06E
MPS6535	2N3906	MPSD04	MPSA12	MTP15N06EL	NDP406AEL
MPS6571	2N5088	MPSD05	MPSA06	MTP15N06L	NDP406B
MPS6573	PN100	MPSD06	2N4400	MTP15N08EL	MTP15N08EL
MPS6574	PN100	MPSD51	MPSA92	MTP15N08L	NDP508BL
MPS6575	PN100	MPSD52	2N5401	MTP20N06	MTP20N06

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
MTP20N08	NDP508B	NDB406BE	NDB406BE	NDB508AL	NDB508AL
MTP20N10	NDP510B	NDB406BEL	NDB406BEL	NDB508B	NDB508B
MTP20N10E	NDP510BE	NDB406BL	NDB406BL	NDB508BE	NDB508BE
MTP25N05	NDP505B	NDB408A	NDB408A	NDB508BEL	NDB508BEL
MTP25N06	NDP506B	NDB408AE	NDB408AE	NDB508BL	NDB508BL
MTP25N06E	NDP506BE	NDB408AEL	NDB408AEL	NDB510A	NDB510A
MTP25N06L	NDP506BL	NDB408AL	NDB408AL	NDB510AE	NDB510AE
MTP25N10	NDP610B	NDB408B	NDB408B	NDB510AEL	NDB510AEL
MTP25N10E	NDP610BE	NDB408BE	NDB408BE	NDB510AL	NDB510AL
MTP25N10EL	MTP25N10EL	NDB408BEL	NDB408BEL	NDB510B	NDB510B
MTP3055E	MTP3055E	NDB408BL	NDB408BL	NDB510BE	NDB510BE
MTP3055EL	MTP3055EL	NDB410A	NDB410A	NDB510BEL	NDB510BEL
MTP30N05E	NDP505AE	NDB410AE	NDB410AE	NDB510BL	NDB510BL
MTP30N06EL	MTP30N06EL	NDB410AEL	NDB410AEL	NDB605A	NDB605A
MTP33N10E	MTP33N10E	NDB410AL	NDB410AL	NDB605AE	NDB605AE
MTP35N06E	NDP505AE	NDB410B	NDB410B	NDB605AEL	NDB605AEL
MTP36N06E	MTP36N06E	NDB410BE	NDB410BE	NDB605AL	NDB605AL
MTP40N06EL	NDP606BEL	NDB410BEL	NDB410BEL	NDB605B	NDB605B
MTP45N05E	NDP605BE	NDB410BL	NDB410BL	NDB605BE	NDB605BE
MTP50N05E	MTP50N05E	NDB505A	NDB505A	NDB605BEL	NDB605BEL
MTP50N05EL	NDP605BEL	NDB505AE	NDB505AE	NDB605BL	NDB605BL
MTP50N06E	MTP50N06E	NDB505AEL	NDB505AEL	NDB606A	NDB606A
MTP50N06EL	MTP50N06EL	NDB505AL	NDB505AL	NDB606AE	NDB606AE
MTP8N10	NDP410B	NDB505B	NDB505B	NDB606AEL	NDB606AEL
MTP8N10E	NDP410BE	NDB505BE	NDB505BE	NDB606AL	NDB606AL
NDB405A	NDB405A	NDB505BEL	NDB505BEL	NDB606B	NDB606B
NDB405AE	NDB405AE	NDB505BL	NDB505BL	NDB606BE	NDB606BE
NDB405AEL	NDB405AEL	NDB506A	NDB506A	NDB606BEL	NDB606BEL
NDB405AL	NDB405AL	NDB506AE	NDB506AE	NDB606BL	NDB606BL
NDB405B	NDB405B	NDB506AEL	NDB506AEL	NDB608A	NDB608A
NDB405BE	NDB405BE	NDB506AL	NDB506AL	NDB608AE	NDB608AE
NDB405BEL	NDB405BEL	NDB506B	NDB506B	NDB608AEL	NDB608AEL
NDB405BL	NDB405BL	NDB506BE	NDB506BE	NDB608AL	NDB608AL
NDB406A	NDB406A	NDB506BEL	NDB506BEL	NDB608B	NDB608B
NDB406AE	NDB406AE	NDB506BL	NDB506BL	NDB608BE	NDB608BE
NDB406AEL	NDB406AEL	NDB508A	NDB508A	NDB608BEL	NDB608BEL
NDB406AL	NDB406AL	NDB508AE	NDB508AE	NDB608BL	NDB608BL
NDB406B	NDB406B	NDB508AEL	NDB508AEL	NDB610A	NDB610A



## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
NDB610AE	NDB610AE	NDB710BL	NDB710BL	NDP410AL	NDP410AL
NDB610AEL	NDB610AEL	NDD406A	NDD406A	NDP410B	NDP410B
NDB610AL	NDB610AL	NDD406AL	NDD406AL	NDP410BE	NDP410BE
NDB610B	NDB610B	NDD406B	NDD406B	NDP410BEL	NDP410BEL
NDB610BE	NDB610BE	NDD406BL	NDD406BL	NDP410BL	NDP410BL
NDB610BEL	NDB610BEL	NDD506A	NDD506A	NDP505A	NDP505A
NDB610BL	NDB610BL	NDD506AL	NDD506AL	NDP505AE	NDP505AE
NDB705A	NDB705A	NDD506B	NDD506B	NDP505AEL	NDP505AEL
NDB705AE	NDB705AE	NDD506BL	NDD506BL	NDP505AL	NDP505AL
NDB705AEL	NDB705AEL	NDF206AL	NDF206AL	NDP505B	NDP505B
NDB705AL	NDB705AL	NDF206BL	NDF206BL	NDP505BE	NDP505BE
NDB705B	NDB705B	NDP405A	NDP405A	NDP505BEL	NDP505BEL
NDB705BE	NDB705BE	NDP405AE	NDP405AE	NDP505BL	NDP505BL
NDB705BEL	NDB705BEL	NDP405AEL	NDP405AEL	NDP506A	NDP506A
NDB705BL	NDB705BL	NDP405AL	NDP405AL	NDP506AE	NDP506AE
NDB706A	NDB706A	NDP405B	NDP405B	NDP506AEL	NDP506AEL
NDB706AE	NDB706AE	NDP405BE	NDP405BE	NDP506AL	NDP506AL
NDB706AEL	NDB706AEL	NDP405BEL	NDP405BEL	NDP506B	NDP506B
NDB706AL	NDB706AL	NDP405BL	NDP405BL	NDP506BE	NDP506BE
NDB706B	NDB706B	NDP406A	NDP406A	NDP506BEL	NDP506BEL
NDB706BE	NDB706BE	NDP406AE	NDP406AE	NDP506BL	NDP506BL
NDB706BEL	NDB706BEL	NDP406AEL	NDP406AEL	NDP508A	NDP508A
NDB706BL	NDB706BL	NDP406AL	NDP406AL	NDP508AE	NDP508AE
NDB708A	NDB708A	NDP406B	NDP406B	NDP508AEL	NDP508AEL
NDB708AE	NDB708AE	NDP406BE	NDP406BE	NDP508AL	NDP508AL
NDB708AEL	NDB708AEL	NDP406BEL	NDP406BEL	NDP508B	NDP508B
NDB708AL	NDB708AL	NDP406BL	NDP406BL	NDP508BE	NDP508BE
NDB708B	NDB708B	NDP408A	NDP408A	NDP508BEL	NDP508BEL
NDB708BE	NDB708BE	NDP408AE	NDP408AE	NDP508BL	NDP508BL
NDB708BEL	NDB708BEL	NDP408AEL	NDP408AEL	NDP510A	NDP510A
NDB708BL	NDB708BL	NDP408AL	NDP408AL	NDP510AE	NDP510AE
NDB710A	NDB710A	NDP408B	NDP408B	NDP510AEL	NDP510AEL
NDB710AE	NDB710AE	NDP408BE	NDP408BE	NDP510AL	NDP510AL
NDB710AEL	NDB710AEL	NDP408BEL	NDP408BEL	NDP510B	NDP510B
NDB710AL	NDB710AL	NDP408BL	NDP408BL	NDP510BE	NDP510BE
NDB710B	NDB710B	NDP410A	NDP410A	NDP510BEL	NDP510BEL
NDB710BE	NDB710BE	NDP410AE	NDP410AE	NDP510BL	NDP510BL
NDB710BEL	NDB710BEL	NDP410AEL	NDP410AEL	NDP605A	NDP605A

**Cross-Reference of Devices (continued)**

Industry Part Number	Recommended National Device
NDP605AE	NDP605AE
NDP605AEL	NDP605AEL
NDP605AL	NDP605AL
NDP605B	NDP605B
NDP605BE	NDP605BE
NDP605BEL	NDP605BEL
NDP605BL	NDP605BL
NDP606A	NDP606A
NDP606AE	NDP606AE
NDP606AEL	NDP606AEL
NDP606AL	NDP606AL
NDP606B	NDP606B
NDP606BE	NDP606BE
NDP606BEL	NDP606BEL
NDP606BL	NDP606BL
NDP608A	NDP608A
NDP608AE	NDP608AE
NDP608AEL	NDP608AEL
NDP608AL	NDP608AL
NDP608B	NDP608B
NDP608BE	NDP608BE
NDP608BEL	NDP608BEL
NDP608BL	NDP608BL
NDP610A	NDP610A
NDP610AE	NDP610AE
NDP610AEL	NDP610AEL
NDP610AL	NDP610AL
NDP610B	NDP610B
NDP610BE	NDP610BE
NDP610BEL	NDP610BEL
NDP610BL	NDP610BL
NDP705A	NDP705A
NDP705AE	NDP705AE
NDP705AEL	NDP705AEL
NDP705AL	NDP705AL
NDP705B	NDP705B
NDP705BE	NDP705BE
NDP705BEL	NDP705BEL

Industry Part Number	Recommended National Device
NDP705BL	NDP705BL
NDP706A	NDP706A
NDP706AE	NDP706AE
NDP706AEL	NDP706AEL
NDP706AL	NDP706AL
NDP706B	NDP706B
NDP706BE	NDP706BE
NDP706BEL	NDP706BEL
NDP706BL	NDP706BL
NDP708A	NDP708A
NDP708AE	NDP708AE
NDP708AEL	NDP708AEL
NDP708AL	NDP708AL
NDP708B	NDP708B
NDP708BE	NDP708BE
NDP708BEL	NDP708BEL
NDP708BL	NDP708BL
NDP710A	NDP710A
NDP710AE	NDP710AE
NDP710AEL	NDP710AEL
NDP710AL	NDP710AL
NDP710B	NDP710B
NDP710BE	NDP710BE
NDP710BEL	NDP710BEL
NDP710BL	NDP710BL
NDS0610	NDS0610
NDS351N	NDS351N
NDS352P	NDS352P
NDS8330	NDS8330
NDS8410	NDS8410
NDS8847	NDS8847
NDS8936	NDS8936
NDS9400	NDS9400
NDS9405	NDS9405
NDS9407	NDS9407
NDS9410	NDS9410
NDS9430	NDS9430
NDS9433	NDS9433

Industry Part Number	Recommended National Device
NDS9435	NDS9435
NDS9436	NDS9436
NDS9933	NDS9933
NDS9936	NDS9936
NDS9942	NDS9942
NDS9943	NDS9943
NDS9945	NDS9945
NDS9947	NDS9947
NDS9948	NDS9948
NDS9952	NDS9952
NDS9953	NDS9953
NDS9955	NDS9955
NDS9956	NDS9956
NDS9958	NDS9958
NDS9959	NDS9959
NDU406A	NDU406A
NDU406AL	NDU406AL
NDU406B	NDU406B
NDU406BL	NDU406BL
NDU506A	NDU506A
NDU506AL	NDU506AL
NDU506B	NDU506B
NDU506BL	NDU506BL
PF5102	PF5102
PF5103	PF5103
PF5301	PF5301
PF5301-1	PF5301-1
PMBD2835	MMBD1205
PMBD2836	MMBD1205
PMBD2837	MMBD1204
PMBD2838	MMBD1204
PMBD6100	MMBD4148
PMBD914	MMBD914
PMBF4391	MMBF4391
PMBF4392	MMBF4392
PMBF4393	MMBF4393
PMBF4416	MMBF4416
PMBFJ174	MMBFJ174

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
PMBFJ175	MMBFJ175	PMBTA55	MMBTA55	PMBZ5257B	MMBZ5257B
PMBFJ176	MMBFJ176	PMBTA56	MMBTA56	PN100	PN100
PMBFJ177	MMBFJ177	PMBTA70	MMBT5086	PN100A	PN100A
PMBFJ308	MMBFJ309	PMBTA92	MMBTA92	PN200	PN200
PMBFJ309	MMBFJ309	PMBTA93	MMBTA92	PN200A	PN200A
PMBFJ310	MMBFJ310	PMBTH10	MMBTH10	PN2222	PN2222
PMBT2219	MMBT2222	PMBTH81	MMBTH81	PN2222A	PN2222A
PMBT2219A	MMBT2222A	PMBZ5226B	MMBZ5226B	PN2369	PN2369
PMBT2222	MMBT2222	PMBZ5227B	MMBZ5227B	PN2907	PN2907
PMBT2222A	MMBT2222A	PMBZ5228B	MMBZ5228B	PN2907A	PN2907A
PMBT2369	MMBT2369	PMBZ5229B	MMBZ5229B	PN3563	PN3563
PMBT2905	MMBT2907	PMBZ5230B	MMBZ5230B	PN3565	PN3565
PMBT2905A	MMBT2907A	PMBZ5231B	MMBZ5231B	PN3566	PN3566
PMBT2907	MMBT2907	PMBZ5232B	MMBZ5232B	PN3567	PN3567
PMBT2907A	MMBT2907A	PMBZ5233B	MMBZ5233B	PN3568	PN3568
PMBT3640	MMBT3640	PMBZ5234B	MMBZ5234B	PN3569	PN3569
PMBT3903	MMBT3904	PMBZ5235B	MMBZ5235B	PN3638	PN3638
PMBT3904	MMBT3904	PMBZ5236B	MMBZ5236B	PN3638A	PN3638A
PMBT3905	MMBT3906	PMBZ5237B	MMBZ5237B	PN3640	PN3640
PMBT3906	MMBT3906	PMBZ5238B	MMBZ5238B	PN3642	PN3642
PMBT4400	MMBT4401	PMBZ5239B	MMBZ5239B	PN3643	PN3643
PMBT4401	MMBT4401	PMBZ5240B	MMBZ5240B	PN3644	PN3644
PMBT4402	MMBT4403	PMBZ5241B	MMBZ5241B	PN3646	PN3646
PMBT4403	MMBT4403	PMBZ5242B	MMBZ5242B	PN4091	PN4091
PMBT5086	MMBT5086	PMBZ5243B	MMBZ5243B	PN4092	PN4092
PMBT5087	MMBT5087	PMBZ5244B	MMBZ5244B	PN4093	PN4093
PMBT5088	MMBT5088	PMBZ5245B	MMBZ5245B	PN4117	PN4117
PMBT5089	MMBT5089	PMBZ5246B	MMBZ5246B	PN4117A	PN4117A
PMBT5401	MMBT5401	PMBZ5247B	MMBZ5247B	PN4121	PN4121
PMBT5550	MMBT5550	PMBZ5248B	MMBZ5248B	PN4122	PN4122
PMBT5551	MMBT5551	PMBZ5249B	MMBZ5249B	PN4141	PN4141
PMBTA05	MMBTA05	PMBZ5250B	MMBZ5250B	PN4143	PN4143
PMBTA06	MMBTA06	PMBZ5251B	MMBZ5251B	PN4248	2N5087
PMBTA13	MMBTA13	PMBZ5252B	MMBZ5252B	PN4249	2N5087
PMBTA14	MMBTA14	PMBZ5253B	MMBZ5253B	PN4249	PN4249
PMBTA20	MMBT3904	PMBZ5254B	MMBZ5254B	PN4250	PN4250
PMBTA42	MMBTA42	PMBZ5255B	MMBZ5255B	PN4250A	PN4250A
PMBTA43	MMBTA42	PMBZ5256B	MMBZ5256B	PN4258	PN4258

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
PN4275	PN4275	PZT3904	PZT3904	SI9407DY	NDS9407
PN4303	PN4303	PZT3906	PZT3906	SI9410DY	NDS9410
PN4355	PN4355	PZT7052	PZT7052	SI9430DY	NDS9430
PN4356	PN4356	PZTA14	PZTA14	SI9435DY	NDS9435
PN4391	PN4391	PZTA42	PZTA42	SI9936DY	NDS9936
PN4392	PN4392	PZTA64	PZTA64	SI9942DY	NDS9942
PN4393	PN4393	PZTA92	PZTA92	SI9943DY	NDS9943
PN4416	PN4416	RFD12N06RLE	NDU406AL	SI9945DY	NDS9945
PN4858	PN4858	RFD12N06RLESM	NDD406AL	SI9947DY	NDS9947
PN4888	2N5401	RFD14N05	NDU406A	SI9948DY	NDS9948
PN4917	PN4917	RFD14N05L	NDU406AL	SI9952DY	NDS9952
PN5134	PN5134	RFD14N05LSM	NDD406AL	SI9953DY	NDS9953
PN5135	PN3643	RFD14N05SM	NDD406A	SI9955DY	NDS9955
PN5136	PN3643	RFD16N05	NDU506A	SI9956DY	NDS9956
PN5137	PN3643	RFD16N05L	NDU506AL	SI9958DY	NDS9958
PN5138	PN5138	RFD16N05LSM	NDD506AL	SMBT2222	MMBT2222
PN5139	PN5138	RFD16N05SM	NDD506A	SMBT2222A	MMBT2222A
PN5142	2N3905	RFD3055RLE	MTD3055EL1	SMBT2907	MMBT2907
PN5143	2N3905	RFD3055RLESM	MTD3055EL	SMBT2907A	MMBT2907A
PN5415	MPSA92	RFH45N05	NDP605B	SMBT3904	MMBT3904
PN5416	MPSA92	RFH45N06	NDP606B	SMBT3906	MMBT3906
PN5432	PN5432	RFP12N08	NDP408B	SMBTA13	MMBTA13
PN5434	PN5434	RFP12N08L	NDP408BL	SMBTA14	MMBTA14
PN5855	MPSA55	RFP12N10	NDP510B	SMBTA42	MMBTA42
PN5857	MPSA56	RFP12N10L	NDP510BL	SMBTA43	MMBTA42
PN5965	2N5551	RFP14N05	NDP405A	SMBTA92	MMBTA92
PN930	PN930	RFP15N05	NDP405A	SMBTA93	MMBTA92
PXT2222A	MMBT2222A	RFP15N06	NDP406A	SMD15N05	NDD406A
PXT2907A	MMBT2907A	RFP18N08	NDP508B	SMD25N05-45L	NDD506A
PXT3904	MMBT3904	RFP18N10	NDP610B	SMD3010001	BAS16
PXT3906	MMBT3906	RFP22N10	NDP610B	SMD3010002	BAV70
PXT4401	MMBT4401	RFP25N05	NDP505A	SMD3010003	BAV99
PXT4403	MMBT4403	RFP25N06	NDP506B	SMD3010004	BAW56
PXTA14	MMBTA14	RFP40N10	NDP710A	SMD3020001	BZX84C5V1
PXTA42	MMBTA42	RFP50N05	NDP605A	SMD3020002	BZX84C5V6
PXTA92	MMBTA92	RFP50N05L	NDP605AL	SMD3020003	BZX84C6V2
PZT2222A	PZT2222A	SI9400DY	NDS9400	SMD3020004	BZX84C6V8
PZT2907A	PZT2907A	SI9405DY	NDS9405	SMD3020005	BZX84C7V5

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device	Industry Part Number	Recommended National Device
SMD3020006	BZX84C12	SST308	MMBFJ309	TMPT2906	MMBT2907
SMD4010001	MMBT2222A	SST309	MMBFJ309	TMPT2906A	MMBT2907A
SMD4010002	MMBT2907	SST310	MMBFJ310	TMPT2907	MMBT2907
SMD4010003	MMBT2907A	SST4391	MMBF4391	TMPT2907A	MMBT2907A
SMD4010004	BSR17A	SST4392	MMBF4392	TMPT3903	MMBT3904
SMD4010005	MMBT3906	SST4393	MMBF4393	TMPT3904	MMBT3904
SMD4010007	BC847	SST4416	MMBF4416	TMPT3905	MMBT3906
SMD4010008	BCX71	TIS74	TIS74	TMPT3906	MMBT3906
SMP25N05	SMP25N05	TIS75	TIS75	TMPT4401	MMBT4401
SMP25N05-45L	SMP25N05-45L	TIS93	TIS93	TMPT4402	MMBT4403
SMP25N06	SMP25N06	TIS97	TIS97	TMPT4403	MMBT4403
SMP30N10	SMP30N10	TIS98	TIS98	TMPT5086	MMBT5086
SMP40N10	SMP40N10	TMBD2835	MMBD1205	TMPT5087	MMBT5087
SMP50N05	SMP50N05	TMBD2836	MMBD1205	TMPT5088	MMBT5088
SMP50N06	SMP50N06	TMBD2837	MMBD1204	TMPT5089	MMBT5089
SMP50N06-25	SMP50N06-25	TMBD2838	MMBD1204	TMPT5401	MMBT5401
SMP60N05	SMP60N05	TMBD6100	MMBD4148	TMPT5550	MMBT5550
SMP60N06	SMP60N06	TMBD914	MMBD914	TMPT5551	MMBT5551
SMP60N06-14	SMP60N06-14	TMBF4091	MMBF4391	TMPTA05	MMBTA05
SMP60N06-18	SMP60N06-18	TMBF4092	MMBF4392	TMPTA06	MMBTA06
SMU15N05	NDU406A	TMBF4093	MMBF4393	TMPTA13	MMBTA13
SO2222	MMBT2222	TMBF4391	MMBF4391	TMPTA14	MMBTA14
SO2222A	MMBT2222A	TMPF4392	MMBF4392	TMPTA20	MMBT3904
SO2369	MMBT2369	TMPF4393	MMBF4393	TMPTA42	MMBTA42
SO2907	MMBT2907	TMPFB246A	BSR58	TMPTA43	MMBTA42
SO2907A	MMBT2907A	TMPFB246B	BSR58	TMPTA55	MMBTA55
SO3904	MMBT3904	TMPFB246C	BSR58	TMPTA56	MMBTA56
SO3905	MMBT3906	TMPFJ111	MMBFJ111	TMPTA70	MMBT5086
SO3906	MMBT3906	TMPFJ112	MMBFJ112	TMPTA92	MMBTA92
SO5401	MMBT5401	TMPFJ113	MMBFJ113	TMPTA93	MMBTA92
SO5550	MMBT5550	TMPFJ174	MMBFJ174	TMPZ5230	MMBZ5230B
SST111	MMBFJ111	TMPFJ175	MMBFJ175	TMPZ5231	MMBZ5231B
SST112	MMBFJ112	TMPFJ176	MMBFJ176	TMPZ5232	MMBZ5232B
SST113	MMBFJ113	TMPFJ177	MMBFJ177	TMPZ5233	MMBZ5233B
SST174	MMBFJ174	TMPT2221	MMBT2222	TMPZ5234	MMBZ5234B
SST175	MMBFJ175	TMPT2221A	MMBT2222A	TMPZ5235	MMBZ5235B
SST176	MMBFJ176	TMPT2222	MMBT2222	TMPZ5236	MMBZ5236B
SST177	MMBFJ177	TMPT2222A	MMBT2222A	TMPZ5237	MMBZ5237B

## Cross-Reference of Devices (continued)

Industry Part Number	Recommended National Device
TMPZ5238	MMBZ5238B
TMPZ5239	MMBZ5239B
TMPZ5240	MMBZ5240B
TMPZ5241	MMBZ5241B
TMPZ5242	MMBZ5242B
TMPZ5243	MMBZ5243B
TMPZ5244	MMBZ5244B
TMPZ5245	MMBZ5245B
TMPZ5246	MMBZ5246B
TMPZ5247	MMBZ5247B
TMPZ5248	MMBZ5248B
TMPZ5249	MMBZ5249B
TMPZ5250	MMBZ5250B
TMPZ5251	MMBZ5251B
TMPZ5252	MMBZ5252B
TMPZ5253	MMBZ5253B
TMPZ5254	MMBZ5254B
TMPZ5255	MMBZ5255B
TMPZ5256	MMBZ5256B
TMPZ5257	MMBZ5257B
TN2219	TN2219
TN2219A	TN2219A
TN2905	TN2905
TN2905A	TN2905A

Industry Part Number	Recommended National Device
TN3019	TN3019
TN3725	TN3725
TN4033	TN4033
TN4036	TN4036
U1897	U1897
U1898	U1898
U1899	U1899
U257	U257
U309	U309
U310	U310
U401	U401
U403	U403
U406	U406
VN0610L	NDS0610
VN10KE	BS170
VN10KM	BS170
VN222L	BS170
VN610L	BS170
ZVN3302A	BS170
ZVN3304A	BS170
ZVN3306A	BS170

